MEDICAL RECORD

Symposium on Physical Therapy, page 667

November 1943

Vol. 156, No. 11

From Mother to Daughter . . .

The secret of stag horn shavings is the heritage of the women of the Cora tribe. By swallowing these scrapings, the squaw believes herself protected from pregnancy.*

● Physicians today know the medical necessity of child-spacing. Studies by prominent medical authorities prove that it is essential to infant and maternal health. Years of laboratory and clinic tests have demonstrated the effectiveness of Ortho-Gynol Vaginal Jelly. Because it is non-irritating, non-toxic and well-tolerated in continued use, it is more widely prescribed by physicians than any other preparation of its kind.

*Himes, *Medical History of Contraception*

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The rationing of important iron-giving foods deserves serious consideration as a possible cause for existing and potential iron deficiencies for many. The authorities manifest growing concern over the ever increasing cases of anemias. Such conditions indicate that never before has it been so important to LOOK AT THE BLOOD! *Anemias of nutritional origin are effectively and economically corrected by the administration of specially prepared iron (easily assimilated ferrous sulphate—plain or with liver concentrate) incorporated in . . .*

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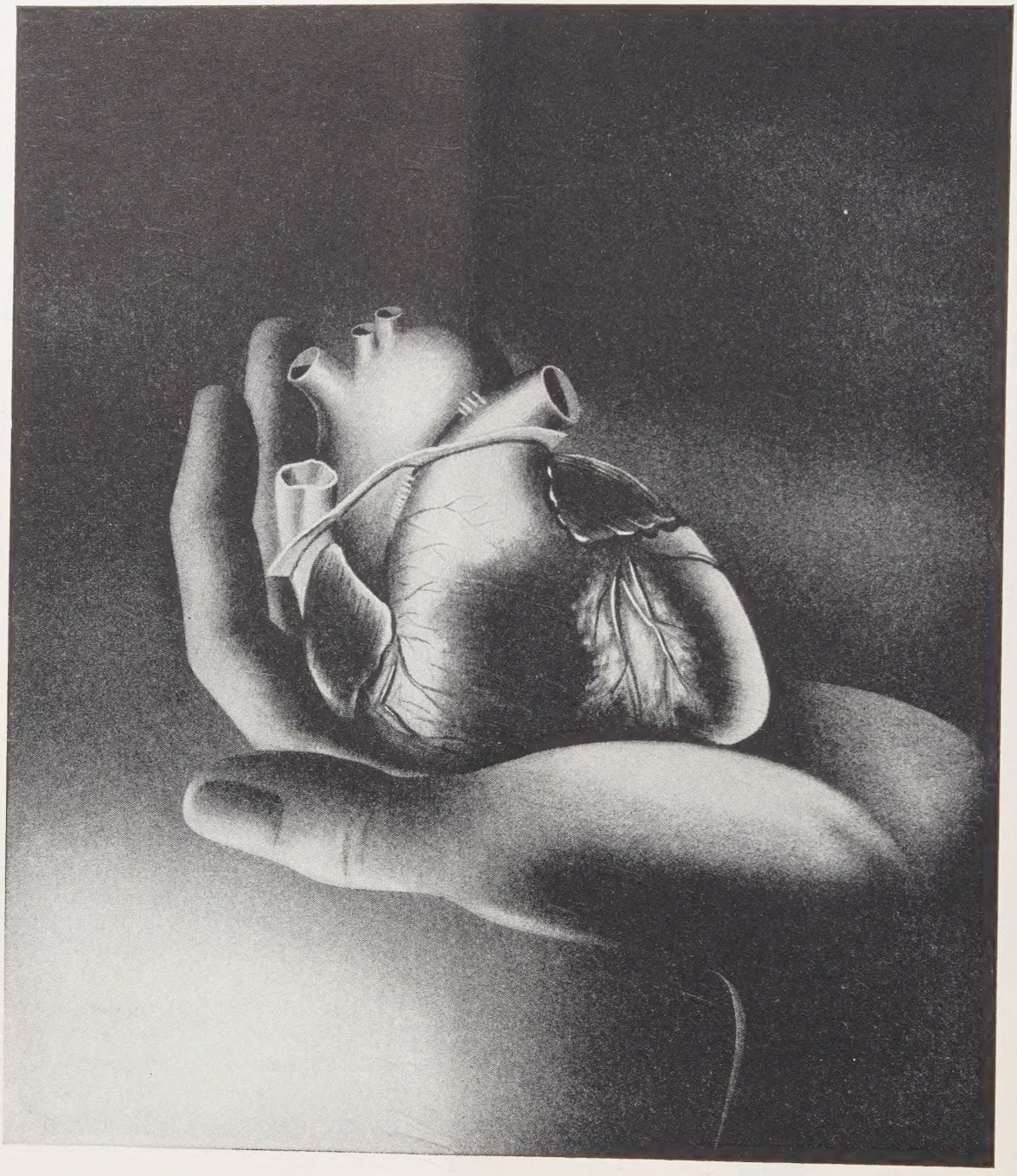

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NOVEMBER 1943

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War Surgery in the Middle East

Surgical procedure on battle casualties in the Middle East is reported by R. K. Debenham (*British Medical Journal,* Aug. 21, 1943) in an article full of valuable suggestions. The hospital served as operating center, as Casualty Clearing Station and as treatment center for the seriously wounded, according to the crises of the moment.

As a casualty clearing station, organization, improvization, and assembly line methods saved life, time, and effort. Surgery on shocked patients as soon as the shock was adequately treated, was found to be imperative. Small details, such as proper identification of artificial dentures are evidences of the thoroughness of planning.

The author's retrospect of the three major uses of this hospital shows certain conditions to be expected and certain procedures that were found to be most effective. The locale of the fighting, dry sandy desert, minimized tetanus danger, dirt and clothing contamination. Sulfanilamide used on the field increased the margin of safe treating time. In types of wounds treated, minor flesh wounds from shell fragments predominated. Discussion of these, together with fractures, head, neck and chest wounds, abdominal cases, wounds of the buttock, genitourinary organs, spine, vascular lesions which frequently necessitated amputations, blast injury, in which bilateral rupture of the eardrum was common, bring out innumerable suggestions of value. The section on burns, the worst being encountered in tank fighting, warns against too frequent re-dressing, and the danger of toxemia from too much sulfanilamide.

Nursing and general treatment stress the rest necessary for patients until they recover from battle weariness and the trip to the hospital. The author comments on the infrequency of gas gangrene and gas infection and the absence of tetanus. Pentothal as an induction anesthetic was preferred.

Mortality figures were higher than the approximate 1.3 percent assigned to Middle Eastern Casualty Clearing Stations because of the more than three thousand men treated, many were seriously ill when they reached this hospital. The author notes that if a patient is fit enough to reach a station his chances of recovery are excellent. He lists the following "Don'ts".

Don't suture wounds or amputation stumps. Don't amputate at the site of election—go below it. Don't use packing except to stop hemorrhage. Don't use drainage tubing, unpadded plasters, or let a plaster dry with the heel resting on stretcher. Don't forget to give morphine before a long bumpy journey. Don't forget to sling a Thomas splint on the stretcher bar. Don't forget to give plenty of fluids by mouth. Don't forget to record prominently on the field medical card, underlined, the ligature of a main vessel.

In concluding, the author stresses the salient features of organized resuscitation and local and general sulfanilamide; the importance of thorough immobilization; the adequacy of conservative surgery and wound trimming instead of wound excision; the dangers attendant on tension around wounds and the necessity for a good blood supply in damaged limbs; the satisfactory way in which the wounded man travels (except the abdominal and severe burn cases) and finally, the need to adapt and improvise articles to fulfill functions for which they were never intended. In war surgery, careful attention to important details is repaid by results.

Winter time is the season of throat affections. Many physicians have found Thantis Lozenges to be effective in relieving throat soreness and irritation, because they are antiseptic and anesthetic for the mucous membranes of the throat and mouth.
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Open Forum

Tuberculosis in Wartime

In time of war, beware of tuberculosis. Beware of tuberculosis at all times, but particularly so in wartime, for war and tuberculosis go together, and if we are to profit by past experiences, then we must redouble our guard.

In the last world war tuberculosis gained headway among all the peoples involved. The death rate, which up to 1914 had been steadily declining, began to rise shortly after hostilities broke out and continued to do so as the war years added up.

In this war it is not unlikely that tuberculosis will again make headway. Up to the present the tuberculosis record in the United States has been *in the main* reassuring. But in England the early war years showed an increase of ten percent in deaths from tuberculosis. The figures for most of the other warring nations are either unavailable or unreliable. But even in our own country, despite a continued decline in the general death rate from tuberculosis, there are some disturbing figures for the younger age groups. During the past year (1942) there was a noteworthy rise in tuberculosis deaths among young white men fifteen to twenty-four years of age, and among girls ten to fourteen years of age. These figures are a challenge which we must meet promptly and effectively.

One of the most important weapons in the war against tuberculosis is the x ray. Every young person going to work for the first time should have his or her lungs x rayed. Such an x ray is of greatest value when it is part of a complete medical examination. Of equal importance are the day-in, day-out living habits, principally good and adequate food and sufficient rest. Eating isn't a matter of appeasing hunger. What we need are the right kinds of food, in sufficient quantities to supply us with energy and to keep us healthy. Adequate rest is of equal importance. Recreation and entertainment are also good, but not when purchased at the cost of sleep.

Then to be on "double guard", everyone should know the signs and symptoms of tuberculosis: loss of weight, a "cold" that hangs on, a tiredness you cannot get rid of, fever, spitting blood. The presence of any one of these symptoms does not necessarily mean that the individual *has* tuberculosis, but each should be investigated.

In these days of intensive war effort, every man, woman and child counts. We need all the health and vitality we can muster. We cannot afford to gamble with or to waste any of our manpower. It is our individual responsibility to see that none of it is wasted.

Your local tuberculosis association is ready and eager to help you. You will find there literature, posters, information and advice. It is yours for the asking. Your support of the annual Christmas Seal sale has made these services possible. Make them your weapons for health and victory.

IAGO GALDSTON, *Executive Secretary*
Committee of Medical Information
New York Academy of Medicine

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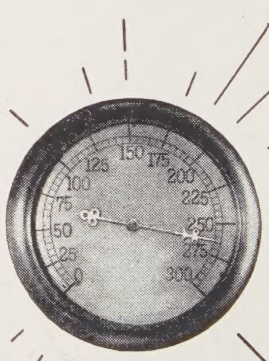

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Russian Medical Services in Wartime

A report in the *British Medical Journal* on the three weeks' visit to Soviet Russia made by four British, two American and one Canadian surgeon (*Science*, Oct. 1, 1943), commends the excellence of organization of the Russian medical services. The medical mission inspected hospital arrangements as far forward as Vyazma on the Western front, visited the clearing field and mobile hospitals, and inspected the medical institutes and depots in Moscow. In surgical work the same general principles as those accepted in British war surgery are followed and the same conclusions reached. During the twenty-five years between the two wars Russian realization of their shortcomings has so raised the standard of medical and surgical work that it now bears comparison with that of any other belligerent country.

The mission was greatly impressed with the colossal scale of the system of blood transfusion. Excellent arrangements have been made for the collection of blood, and more voluntary donors, ninety percent of them women, have come forward than are needed. Extra rations and payment, four-fifths of which is returned for war purposes, are received by the donors. In the use of plasma and serum the same procedure is followed as in Britain. In no circumstances has the Russian Army lacked transfusion blood.

The chief of the medical services of the Russian Army, General Smirnov, is only thirty-five years of age, and is considered not only an admirable administrator, but is held in the highest regard by his colleagues from the professional point of view. The medical service is becoming a woman's service; ninety percent of the doctors now training being women, as compared with fifty percent in peace time. In Russia, as elsewhere, the ordinary medical and nurses' training courses have been much accelerated.

The Russian nurse is outstanding in that she is both excellent at her job, and can turn her hands in spare time to any employment, even to building hospitals and digging foundations. She is especially expert in the art of camouflage.

The visitors made as extensive an inspection as possible during their brief stay. They visited research institutes, and observed the medical organization in Moscow, the impressive civilian defense and ambulance arrangements, so organized that within two minutes of an emergency call a well equipped ambulance with doctor, nurse and orderly was on its way.

Medical Literature for Dr. Estapé

To the Editor:—

The query and request by Dr. Esperanza R. del Casal Estapé makes me think that we doctors in the United States could render a distinct service and incidentally help the good neighbor policy by responding to this request. I have a lot of medical magazines, and reprints that are wasted. In self-defense much good material is thrown out and destroyed.

I would be glad to get the address of Dr. Estapé and send him material from time to time.

Paul H. Steppenbeck
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TO SAVE YOUR TIME, DOCTOR
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By helping to keep the infant free of many rashes and skin infections, Mennen Antiseptic Oil may often save avoidable calls. It is the only widely used baby oil that does all these three things:
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[1] Am. Jl. Surg., 33:523, 1936
*Trade Mark Reg. U. S. Pat. Off.

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Will the Axis Use Gas?

No sane nation would use gas. But for the Axis these are not sane times, and with each Allied victory the moment of the last ditch fight, by any means however foul, approaches. Indiscriminate and large scale use of poison gas may conceivably be resorted to by Germany and Japan in a desperate attempt to turn the tide, in the opinion of the Metropolitan Life Insurance Company's *Statistical Bulletin* (Sept. 1943).

Information on chemical warfare in the first world war, as compiled by Augustin M. Prentiss in his comprehensive volume *Chemicals in War,* has a bearing on the success or failure in spreading panic and suffering among Allied civilian populations and military forces in the present war. Reviewed briefly is the known data: The use of poison gas was initiated by the Germans in April 1915, near Ypres. Used against the unprepared French and Canadians, twenty thousand casualties, five thousand of them fatal, were suffered. By September the Allies were able to retaliate in kind, and the tempo of gas warfare increased steadily, with both sides expanding manufacturing facilities and training troops in the use of this new weapon. Even with the one million three hundred thousand gas casualties (ninety-one thousand fatal) of the first world war, this represented only a fatality rate of seven percent as against twenty-five percent for nongas casualties.

While complete figures are not available on the statistics of gas casualties for each war year, there is evidence that the proportion of fatalities dropped sharply as methods of combating gas attacks improved. Prentiss estimates that from a high of twenty-five percent fatalities in 1915 and 1916, by 1918 gas was killing less than three percent. The American troops suffered more proportionately than any other troops, since they entered the war late, when gas warfare was highly developed. However, even with this disadvantage, less than three percent of our battle deaths were caused by gas. The Russians suffered most numerically, and had ten percent fatalities. Germany and Austria together received about as much damage as they gave the troops of the British Empire and France.

In view of these facts regarding the potentialities of gas warfare, it appears that the Axis would gain little by its use in the present war. Not only are Allied troops well trained and protected against it, but they are likewise prepared to retaliate. Moreover, chemical warfare directed against civilians would be relatively valueless, because of the difficulty of developing sufficiently high concentrations over large enough areas. Furthermore, the population of our Allies in Europe have been trained in antigas measures. This leaves only the panic factor, and with the high morale under bombings shown by our gallant Allies, it is certain that the use of gas could only prove a boomerang to the Axis. If they thought chemical warfare would gain them any advantage, it is felt they would have used it long before this. However, with mad dogs, danger always exists. The peoples of the United Nations must continue to be on guard against gas warfare, however doubtful it may be that it will be used in the present war.

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PEPSENCIA with VITAMIN B_1 contains 1,000 units of Vitamin B_1—125 units to each teaspoonful.

PEPSENCIA with VITAMIN B_1 is rigidly standardized, is stable, and is agreeable in flavor.

PEPSENCIA with VITAMIN B_1 compensates for certain deficiencies caused by chronic functional and organic gastric diseases.

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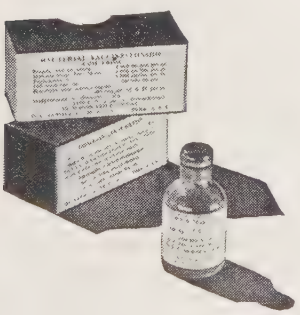
The conventional cold vaccines are able to stimulate antibacterial substances only. *Common Cold Vatox* "National" however, now enables the body to produce *both* antibacterial and antitoxic substances and thus combat on "a second front" the more troublesome sequelae of the common cold.



Common Cold Vatox "National" eliminates the necessity of increasing the dosage above 0.5 cc. where formerly 1 cc. was needed to accomplish results.

Available—6 cc. vials. For additional information write National Drug Company, Dept. J. Philadelphia 44, Pennsylvania.

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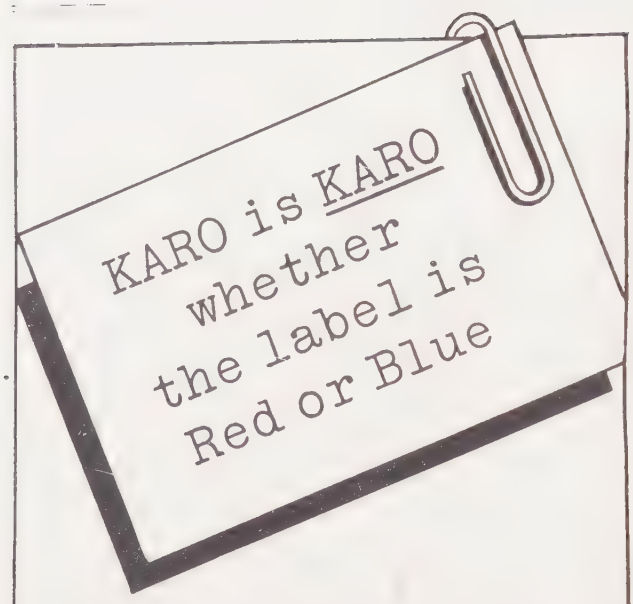

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How much KARO for Infant Formulas?

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United States and American Republics Exchange Medical Knowledge

The Americas are exchanging medical knowledge as part of a great inter-American health and sanitation program, now under way in seventeen of the other American republics.

In this continental effort to control and reduce the ravages of malaria, tuberculosis, yaws and other diseases, the United States is contributing technical and financial assistance through the Institute of Inter-American Affairs.

Many doctors, sanitation engineers and other specialists of Latin America are coming to the United States to study in leading medical schools, for observation and training in public health activities and in special fields of health work.

In turn, United States doctors are finding new opportunities for first-hand study and practical experience in the projects evolving out of the inter-American program, particularly in the campaign against malaria and other tropical diseases.

More than one hundred doctors from Latin America have come to the United States for additional training. In the reversal of this exchange, some thirty United States doctors already have completed training in Central America, where extensive work is being carried on for control of malaria.

With the United States soldiers, sailors, and marines fighting on battlefronts in the tropics, medical men have found it necessary to increase their knowledge of diseases prevalent there.

Dr. Eugene P. Campbell, of the health and sanitation division of the Institute of Inter-American Affairs, Washington, reports that medical men from United States are enthusiastic about the training they are receiving in the republics to the south. Dr. Campbell is director of the United States missions assisting Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua in health and sanitation programs.

The training program was established by the Association of American Medical Colleges, with the financial support of the Markel Foundation in New York.

Here is how the plan works:

When the doctors arrive in Central America, they report to the heads of the respective medical missions from the United States. The visiting doctors work on tropical disease cases in hospitals for three weeks. At the end of this period they go out with a field party for a week or ten days, learning more about malaria, dysentery, and other tropical diseases.

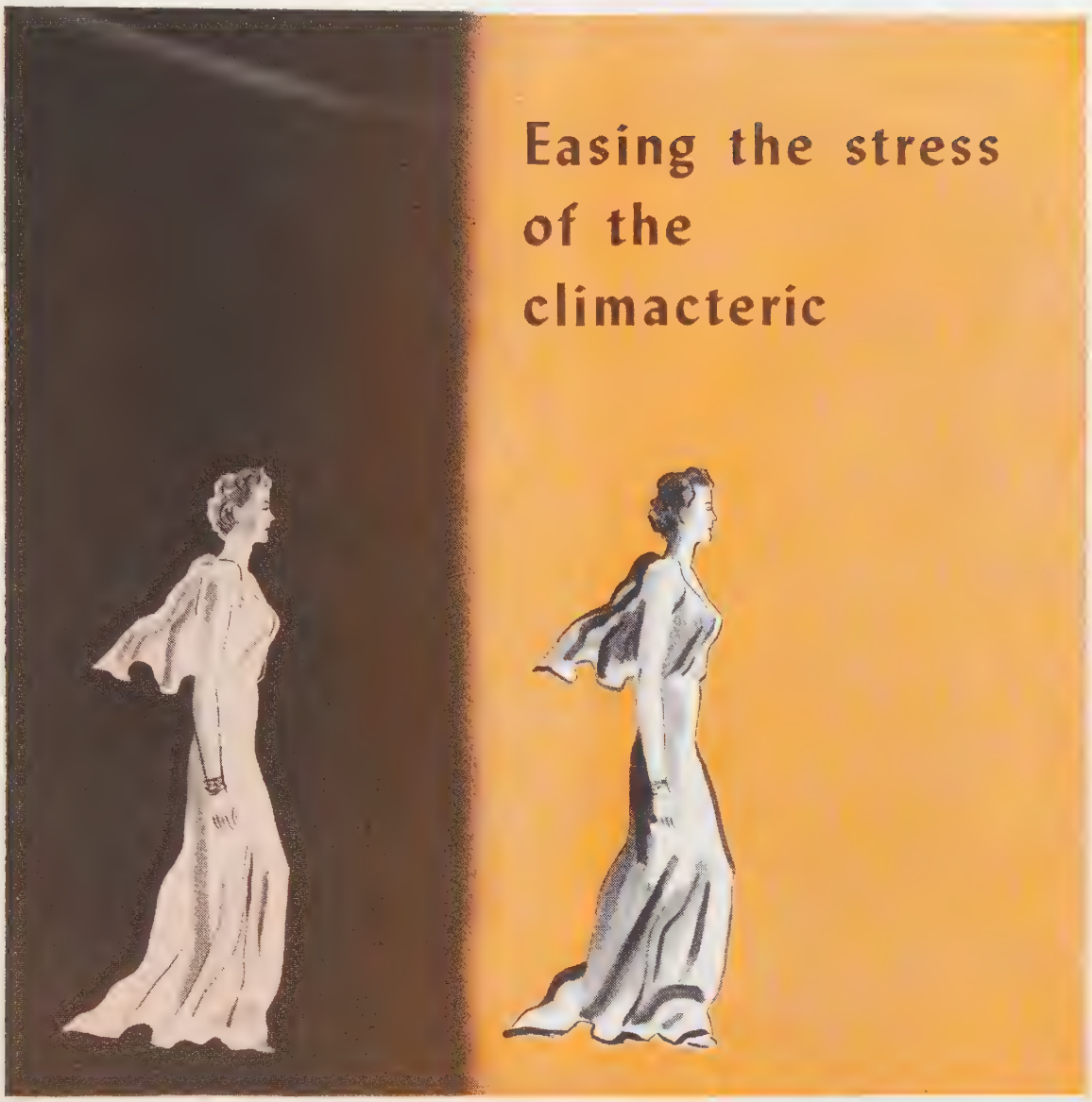
"This program has given our doctors experience they would not obtain elsewhere," said Dr. Campbell." It has given them something concrete. Many doctors in the United States have had little experience with tropical medicine, and this is a handicap to the Army."

Dr. Campbell said that President Tiburcio Carias Andino, of Honduras, has been especially interested in the program.

The exchange of doctors and technicians among the Americas is an important phase of the program of inter-American cooperation which resulted from the conference of American Foreign Ministers at Rio de Janeiro in January 1942.

Doctors from the United States and Canada who have finished or are receiving training in Central America are:

(Continued on page 654)



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Literature sent on request.

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Carroll L. Birch, assistant professor of medicine, University of Illinois, assigned to Golfito, Costa Rica: Robert C. Lowe, assistant professor of medicine, University of Louisiana, to Quepos, Costa Rica; Walter A. Stryker, instructor of pathology, University of Michigan, to Quepos, Costa Rica; Elberton J. Tiffany, assistant professor of bacteriology, Long Island College of Medicine, to Tela, Honduras; George T. Harrell, Jr., associate professor of preventive medicine, Wake Forest College, to Tela, Honduras;

Roswell D. Johnson, instructor of pediatrics, Yale University, to Tiquisate, Guatemala; Robert A. Hettig, instructor of internal medicine, University of Michigan, to Tiquisate, Guatemala; Lemuel W. Diggs, associate professor of medicine, University of Tennessee, to Quirigua, Guatemala; Thomas N. McGavack, associate professor of medicine, New York Medical College, to Tela, Honduras; William McK. German, assistant professor of pathology, University of Cincinnati, to Tela, Honduras; Lloyd J. Florio, associate professor of public health, University of Colorado, to Quepos, Costa Rica; Harry F. Dowling, clinical professor of medicine, George Washington University, to Quepos, Costa Rica.

Mario Mollari, director of bacteriology and preventive medicine, Georgetown University, to Golfito, Costa Rica; Russell J. Blattner, assistant professor of pediatrics, Washington University, to Tiquisate, Guatemala; Murray A. Fallis, demonstrator in preventive medicine, University of Toronto, to Tiquisate, Guatemala; Wesley W. Spink, associate professor of medicine, University of Minnesota, to Quirigua, Guatemala; Thomas P. Almy, instructor of medicine, Cornell University, to Tela, Honduras; Carlton J. Casey, instructor in medicine, University of Virginia, to Tela, Honduras; Arthur L. Tatum, professor of pharmacology, University of Wisconsin, to Tiquisate, Guatemala; Leslie C. Saunders, professor of parasitology, University of Saskatchewan, to Tiquisate, Guatemala; Omar J. Fareed, Jr., instructor in medicine, University of Chicago, to Quirigua, Guatemala; Morris Tager, assistant professor of bacteriology, Yale University, to Quepos, Costa Rica;

Paul A. Lemboke, instructor in medicine, University of Rochester, to Quepos, Costa Rica; William W. Frye, associate professor of preventive medicine, Vanderbilt University, to Golfito, Costa Rica; Raymond W. Wilhelmi, assistant professor of zoology, University of Missouri, to Tiquisate, Guatemala; Howard B. Slavin, assistant professor of medicine, University of Rochester, to Tiquisate, Guatemala; R. M. Shaw, professor of bacteriology, University of Alberta, to Quirigua, Guatemala; J. W. Scott, associate professor of medicine, University of Alberta, to Tela, Honduras; Dr. Donald B. McMullen, associate professor of hygiene, University of Oklahoma, to Tela, Honduras; Francis C. Lawler, professor of bacteriology, University of North Dakota, to Golfito, Costa Rica; Henry E. Wilson, Jr., associate professor of medicine, Ohio State University, to Limon, Costa Rica.

National Rehabilitation Advisory Council

A national Rehabilitation Advisory Council has been appointed, which will advise the Office of Vocational Rehabilitation, recently established in the Federal Security Agency, in connection with the expanded Federal-State program of rehabilitation for the handicapped. The Council is made of twenty outstanding leaders in training for the handicapped, and include representatives of various fields—corrective surgery, physiotherapy, occupational therapy, psychiatry, guidance and welfare agencies, education, labor, management—state directors of vocational rehabilitation, and agencies concerned with such conditions as blindness, tuberculosis and hearing defects.

Approximately a million and a half persons may be eligible for rehabilitation under the program, according to an estimate presented to the Advisory Council at its first meeting, held on Friday, October 8th. Rehabilitation programs to which the Federal Government makes grants are already in operation in all the States, Hawaii, Alaska, and Puerto Rico; it is anticipated participation in the expanded program will be equally nationwide.

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A new organic salt with the high calcium ratio—1 Ca : 2 Br
Less danger of bromism — Palatable — Well tolerated

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Soviet Medical Schools and Libraries Need Books

Vast public health and rehabilitation problems facing Soviet authorities in the thousands of devastated communities recaptured from the Nazis this year are reflected in an appeal just received by Russian War Relief for more than two hundred American textbooks urgently needed in Soviet medical schools and libraries.

Dr. Vladimir V. Lebedenko, noted Soviet neurosurgeon now in the United States on a Red Cross mission, gave the list to Russian War Relief with the plea that the books be collected as quickly as possible to aid in the training of additional physicians and other personnel needed to handle the enormous postwar job of rehabilitating soldiers and civilians suffering from the terrible impact of this war.

Russian War Relief pointed out that whereas medical textbooks previously requested by Soviet authorities were devoted to problems of military medicine, this new list is much broader in subject matter, ranging from plastic surgery to nutrition. It reflects a growing interest of Soviet health officials in the latest American findings in such fields as the treatment of tuberculosis and pneumonia, dietetics, child psychiatry and play therapy, stomach diseases, war neuroses, occupational therapy, psychology and mental hygiene. A few works on cattle and insect diseases are also needed.

Dr. Lebedenko told Russian War Relief that these textbooks would be particularly useful at this time, since Soviet medical institutions are training two and a half times as many physicians as before the war, at a time when paper and other material shortages have greatly reduced Russia's own publishing activities.

Gifts of textbooks from American physicians and medical associations have played a part in the training of more than sixty-six thousand doctors in the U.S.S.R. since June 1941, according to Russian War Relief. Many letters have been received from Soviet physicians and students expressing deep gratitude for the books. The writers particularly mention their pleasure at receiving messages from the donors.

Dr. Lebedenko's medical book list is available upon request from Russian War Relief, 11 East Thirty-fifth Street, New York 16, N. Y. Books donated should be sent to this address.

Rehabilitation Clinics at the New York Hospital

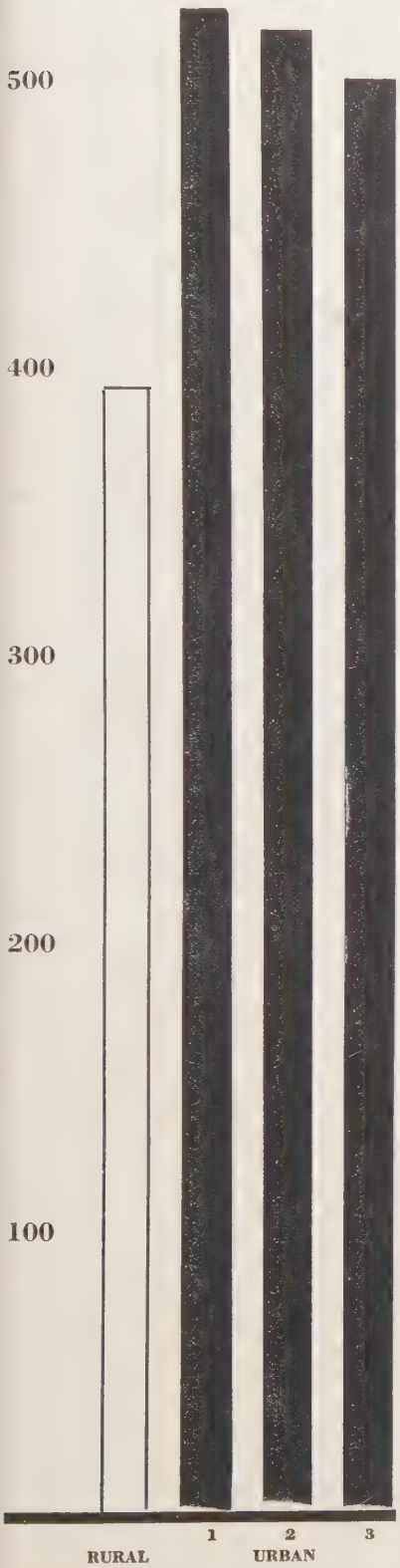
A psychiatric rehabilitation program, which it is hoped may point the way toward reclamation of the estimated eighty thousand New York City men thus far rejected or discharged from military service because of mental illness, has been initiated by the Payne Whitney Psychiatric Clinic of the New York Hospital.

Science (October 8, 1943) reports that a special outpatient clinic has already been established at the hospital. The integration of psychiatric treatment with psychological testing, retraining and employment of an actual community is to be emphasized in the program which was originated by Dr. Thomas C. Rennie, attending psychiatrist at the clinic and associate professor of psychiatry at Cornell University Medical College, who will act as director, with Mrs. M. Simon as chief of psychiatric social service. Dr. Rennie was recently named director of the Division of Rehabilitation of the National Committee on Mental Hygiene. Basic

(Continued on page 658)

RURAL-URBAN RATIO

URBAN AND RURAL CARDIOVASCULAR-RENAL MORTALITY RATE: U.S. 1940 PER 100,000.*



Cardiovascular-Renal Mortality

The urban population has a cardiovascular-renal mortality rate that is 40% greater than among the rural population. This is of additional importance in the present war effort, since considerable numbers from rural communities have been moving into industrial urban centers.

Of the chronic diseases prevalent in industrial communities, the cardiovascular-renal group has been reported to be the most seriously disabling.[1] This is particularly significant of the present, since a greater productive responsibility is being assumed by the more advanced in age. The high incidence of this group of chronic diseases among women of the ages 20-34 is also important in this connection.[2]

Hypertension is directly and indirectly responsible for one-half to three-fourths of the deaths from cardiovascular-renal diseases. The treatment of hypertension is still essentially palliative in nature. Any therapeutic measure, therefore, that safely aids in the management of essential hypertension deserves consideration.

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1. J.A.M.A., 108:1876, May 29, 1937.
2. Public Health Reports, 56:2071, Oct. 24, 1941.

*Based on data furnished by Bureau of the Census.

1. Cities of 2500-10,000
2. Cities of 10,000-100,000
3. Cities 100,000 and over.

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funds to start the clinic have been granted by the Commonwealth Fund.

The clinic is staffed by New York Hospital psychiatrists, psychoanalysts and social workers, all of whom are serving on a voluntary basis. In addition to the New York Hospital volunteer staff, other psychiatrists in the city have signified their willingness to participate in the same kind of project.

Social service agencies interested and willing to cooperate with the program are the New York City Committee on Mental Hygiene, the National Committee on Mental Hygiene, the Social Security Board, the U. S. Employment Service, the Vocational Adjustment Bureau, the American Rehabilitation Committee, the Community Service Society and Y.M.C.A. Arrangements have also been made for the referral of cases to the clinic by the State Selective Service Board.

According to Dr. Rennie, the clinic will fulfill two main functions: one, as an actual treatment center for men in need of rehabilitation, and two, as a fact-finding agency to determine the extent of the problem, the amount of help necessary for rehabilitation, the nature of psychiatric disabilities and what percentage of the patients treated may eventually be re-employed.

Methods of Artificial Respiration

Recent discussion in British medical journals of the efficiency of different methods of artificial respiration induced D. G. Cordier (*Brit. Med. Jour.* Sept. 25, 1943) to reexamine the literature and general principles. All methods, he states, must theoretically obey the requirements of sufficient pulmonary ventilation, stimulate the heart and circulation, be harmless, easy of execution, and rapid in obtaining results. Various tests have been worked out to judge the physiological efficiency of the methods. Cordier studies only the test of ventilation in this paper. Of the different techniques studied, experimenters agree that Silvester's method introduces into the respiratory tract of the apparently dead subject the greatest volume of air. But Cordier contends that determination of ventilation is only one criterion, and that the choice of method also depends on the causes of asphyxia. In previous papers he has discussed the advantages and disadvantages of the Silvester and Schäffer methods and their possible improvements.

In 1932 F. C. Eve published an article on a new method in which the patient lay on a rocking stretcher and the weight of the abdominal contents pushed the diaphragm alternately up and down. He believed that this movement was sufficient to ensure lung ventilation. More recent articles have been published suggesting the great superiority of Eve's method over other methods, especially its practicability at sea. Cordier agrees with certain practical advantages but feels its physiological superiority remains to be proved. He suggests that a much more thoroughgoing comparative study of lung ventilation be made on subjects in apnea, on apneic patients in moderately deep anesthesia, and on the nonrigid cadaver, using in turn the methods of Eve, Schäffer and Silvester, these studies to be completed by experiments made on large monkeys after curarization. Radioscopic and radiographic study of the chest should also be made, and the stimulation of heart and circulation by each of the methods analyzed before Eve's rocking method can be finally adjudged superior to old methods.

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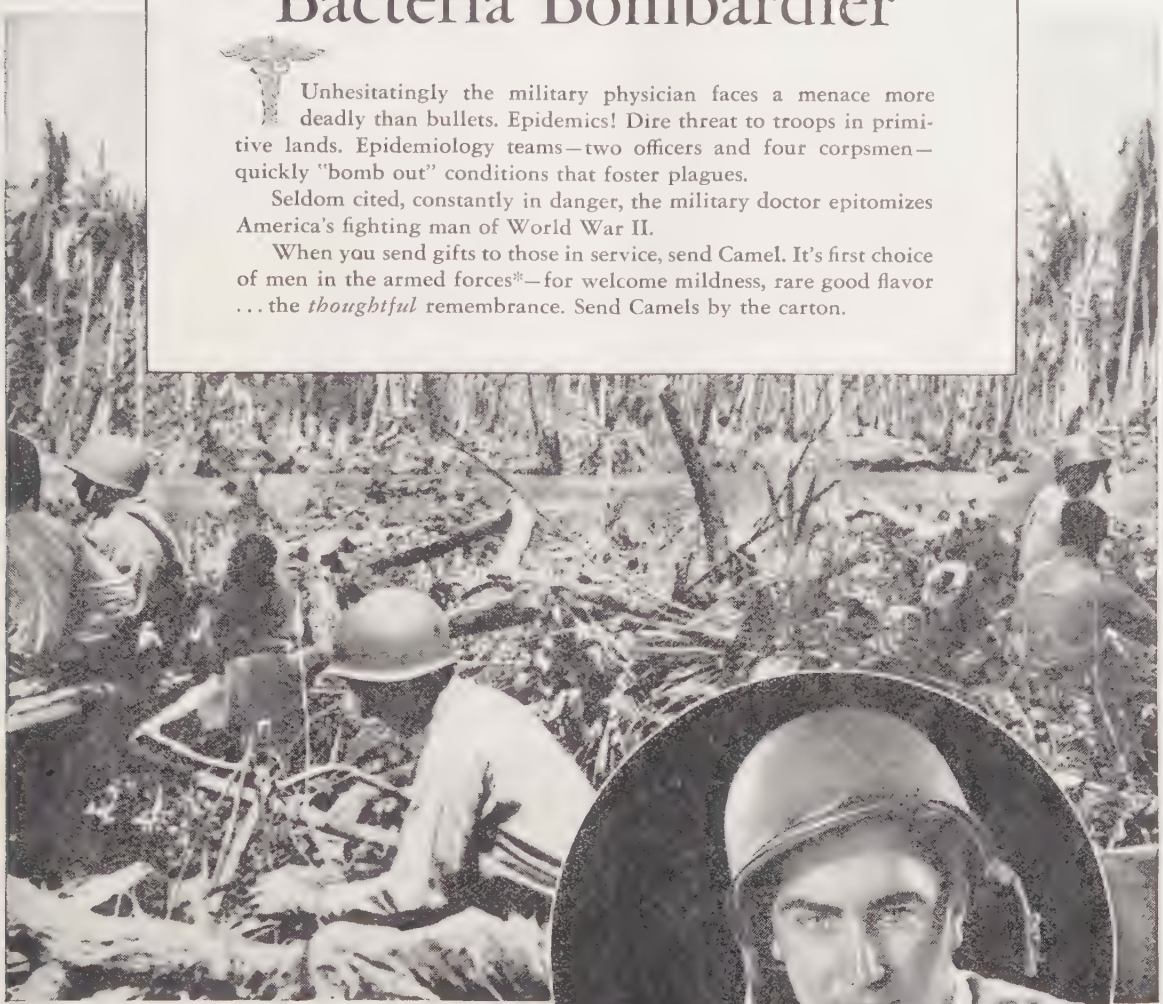

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New reprint available on cigarette research—Archives of Otolaryngology, March, 1943, pp. 404-410. Copies on request. Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York 17, N. Y.

South American Doctors Study Public Health Problems in the United States

A group of seven doctors from Latin America recently visited the United States under the auspices of the Office of the Coordinator of Inter-American Affairs and the Pan American Sanitary Bureau in Washington, D.C. These doctors, all of whom are authorities on public health, attended the meeting of the American Public Health Association in New York, then spent two days at Yale University, studying the organization of its department of public health. They made a tour of several other schools of public health and concluded their visit to the United States by attending the annual meeting of the Association of Schools of Public Health in Ann Arbor, Mich., on November 7th. At this meeting they presented a report on South American public health schools. They also presented a plan for the interchange of students, offering the facilities of their universities for the study of tropical diseases. Dr. Oscar Varga, San Jose, Costa Rica, representing the Pan-American Sanitary Bureau, was the leader of the group.

Army Nurses Gain Invaluable Experience

In hospitals set up to care for disabled veterans of far-off campaigns, the Army nurse is crowding into a week more knowledge about advances in medical and surgical practice than she would gain in a year in a civilian hospital, says *The Red Cross Courier,* (Oct. 1943). One of the largest of the Army hospitals, the Valley Forge General Hospital at Phoenixville, Pa., cares for hundreds of men with the newest methods of medicine, surgery and psychiatry. Twenty-five percent of the nurses caring for these men have served overseas. One group assists Capt. Hillis H. McKean in the interesting experiments with penicillin in treating acute gonorrhea, sulfa-resistant infections. Plastic surgery depends on its ultimate success on nursing care, while injured minds, instead of injured bodies, are the delicate mechanisms that the nurses in the neuropsychiatric wards are helping to adjust. According to Major J. T. Showalter, formerly of St. Elizabeths Hospital, Washington, most of the responsibility for day by day mental healing rests with the nurses. The long drawn out physiotherapy work, the expert treatment of eyes that have been blinded, ears that have been deafened under combat conditions, nerve suturing and skin grafts, all call to the utmost on the nurse's professional knowledge, her skill and understanding.

Health Education in High Schools

Shortage of school personnel for health education has led to a formulation of standards expected of teachers assisting in high school health education programs. Physicians, educators and especially physicians serving as public health officials or members of boards of education will find a reprint, *Education for Victory,* obtained from the United States Office of Education Federal Security Agency Washington, D. C., of helpful interest. The medical knowledge of doctors, without pedagogical training, and the pedagogical experience of science, home economics and physical education teachers, untrained in medicine, have been correlated to help in preparing teachers for the program of physical fitness through health education in high schools.

Our Contributors

Arthur N. Foxe, M.D., New York, N. Y., was graduated from Jefferson Medical College, Philadelphia, in 1927. He was formerly physician to Bellevue Hospital; instructor in neurology at Bellevue Medical College; physician to Saint Lawrence State Hospital, and psychiatrist to the New York State Department of Correction. He now devotes his private practice to psychiatry. He has contributed numerous articles to the literature of his specialty and has published two books, *Crime and Sexual Development,* and *The Life and Death Instincts.* His hobbies are literature and painting in oils.

* * *

Harry Tevel Zankel, M.D., Brooklyn, N. Y., was graduated in medicine from Long Island College of Medicine, Brooklyn, in 1925. At present he is a captain in the Medical Corps, A.U.S., and is on active service. He was formerly lecturer on physical therapy, New York Polyclinic Medical School and Hospital; director of physical therapy, Beth Moses Hospital, Brooklyn, and associate attending in physical therapy, Coney Island Hospital, Brooklyn. He is a charter member of the Society of Physical Therapy Physicians, the American Congress of Physical Therapy, and numerous national and state medical societies. His hobbies are the organization of doctor's hobby groups and playwriting.

* * *

Mark H. Smith, M.D., Glendale, Calif., was graduated from the State University of Iowa College of Homeopathic Medicine and Rush Medical College. He specializes exclusively in treating cardiovascular diseases. He is a member of his local and state medical societies and of the American Medical Association.

* * *

Henry G. Hadley, M.D., LL.B., Sc.D., F.A.C.C.P., Washington, D. C., received his degree in medicine from George Washington University in 1917. He is a member of the courtesy staff of George Washington University, Georgetown University, Garfield, Emergency, Children's, Casualty and Sibley Hospitals. He specializes in internal medicine and diagnosis. His hobbies include laboratory research, especially in tuberculosis and cancer.

* * *

Joseph Echtman, M.D., New York, N. Y., is a pioneer in physical therapy, and has been doing this work for about twenty-four years. For ten years he held a physical therapy clinic at the Mt. Sinai Hospital where he worked daily. Many thousands of patients were treated under his personal supervision. This afforded ample material for his clinical research in physical therapy and resulted in the publication of numerous original articles which appeared in various outstanding journals including the Medical Record. In 1936 he resigned from the physical therapy clinic of the Mt. Sinai Hospital but continues his work in the capacity of senior assistant in the cardiac clinic of that institution. He has been chief of the physical therapy service of the Stuyvesant Polyclinic Hospital for many years. He is also lecturer and demonstrator in physical therapy at the New York Medical College and Flower and Fifth Avenue Hospitals; physical therapist to the Beth David Hospital and assistant visiting physical therapist at the Metropolitan Hospital.

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MEDICAL RECORD

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OXYGEN TAKES A BOW

MARK H. SMITH
Glendale, Calif.

The criterion for medical advancement is in its paralleling scientific achievement. As a single example of a revolutionary advancement in chemistry being of benefit to modern medicine, Priestley's revelation of oxygen may be mentioned. In reality, however, medicine is more particularly indebted to this scientist than for the disclosure of the existence of an unknown element.

Probably Priestley's insight into biochemical effects, nearly two centuries ago, gave, more than anything else, a basis for the scientific attainments of our present day chemistry. Here again was endorsed upon the certificate of medical progress, the advantages that exist in clinical observation. Here was the application, for the benefit of mankind, of scientific knowledge derived from experimental work on lower forms of life.

It was only a few years after Priestley identified oxygen that the Brownian movement of molecular particles was recognized. Then followed the recognition of anodal and cathodal principles. From this point we have been led forward into stages of science wherein are determined molecular subdivision and the resolving of matter into the principles of positive, negative, and intermediate expressions in atomic representation.

Herein are profiles of colloidal manifestation. Now, the effects which attend colloidal display are being weighed and measured by scientific resources, although the elucidations of such effects remain rather fragmentary.

To the average man engrossed in medicine, any reference to phases of matter upon the basis of colloidal expression, arouses small interest. Efforts to explain attainments in the field of colloidal chemistry usually only succeed in arousing expressions of disbelief upon the part of the uninformed. Even demonstrations of colloidal effects only find a response of general nonfamiliarity with modern medical successes.

The more resolvable principles of physiological activity in the living organism remain very much as a new and unopened book lying before the average student. A busy professional man has little time in which to wade through the mass of literature which must be digested before a satisfactory understanding of biological chemistry can be acquired. But, it is only through acquiring a basic knowledge of colloidal phases and related phenomena that any real depth can be attained in mental assimilation of histological association or of its changes to the phase of colloidal mass that we term pathology.

Let us regard one concept of active molecular or colloidal expression as being the phenomenon that we term ionization. In reality this is but the process that gives Brownian movement, being identical with the phasic activity which is identified as an energetic propulsion of minute particles.

The requirement for abandoning generalization for more specific designations in cause and effect, restricts the term ionization to mean the capacity that is related to submicronic or ultramicroscopic particles. This means the ultimate in divisible substance, such being the composing elements of anions and cations, which gives us the now acceptable pairing of each of these ultimate particulates, designated as a doublet.

In any such study as has thus far been introduced, one is not permitted to exclude the variety of physical manifestations which are interpreted as surface tension, valence, specific gravity, mass, phasic expression, photosynthesis or other specific or indefinite expressions. Each one of these, however, is to be recognized as a digit which is required for inclusion to make a number complete.

Priestley's recognition of oxygen was really based upon his observation that mice could not exist in air that had been breathed. However, with the introduction of living plants within the experimental chamber, Priestley found that the air was so purified that mice could continue in normal health.

This was the origin of the conception that oxygen occurs in two forms. One is that of being fixed, bound, as an inactive form, through its being combined as impure or expired air, the other form being free. The latter is that of an active, combining agent wherein the oxygen has regained its potential value as through plant or photosynthetic change.

Any regard for plant chemistry involves the principles that are contained in the effects of sunlight. This, too, may be in some other specified or nondesignated rays that make impact upon and contribute surface energy to the enormous molecule within a gaseous capsule and known as the earth. Such rays as waves are oscillating in character and all contribute chemical effects, thus controlling inorganic response and organic persistence.

Biochemical effects arise in, are perpetuated by means of, or are conversely annihilated by these energetic impulses which arise from or are reflected by distant masses in the expansive universe.

Through eons of organic existence upon the earth

crust of animal and vegetable forms, the effects of respired air would have long since precluded man's perpetuation had not some constantly active revivifying factor been communicated to the earth from exoterrestrial sources. What and where these centers may be, it is impossible to imagine. The atmosphere enclosing the earth is of narrow bounds, it has little density, and its circumference cannot press downward and displace that which is nearer to the surface of the globe.

Our atmosphere shows a very rapid decrease in its pressure effect as altitude is gained in rising from the surface of the earth. Then, as related to oxygen or air particles, colloidal activity must be greater nearer the surface of the earth than at higher elevations, unless compensating effects are introduced at higher levels. The same reasoning tells us that atmospheric density nearer to the earth's surface obstructs or absorbs a material amount of the rays which have no difficulty in penetrating the outer boundary of our gas envelope. In higher altitudes conformable instances exist in the less humid, clarified and transparent atmosphere, there being a relative freedom from dust or surface colloids. These at lower levels offer impediment to rays from solar or undesignated sources as mentioned.

The density of colloidal forms upon the surface of the earth results in part from the impact and rebound of wave impulses. Whether direct or less exact these give such influential effects as can be recognized in photosynthesis. So much of the globe surface is subjected to seasonal variations, areas wherein plants cannot perpetuate photosynthetic properties and purify oxygen for respiratory requirements, that we must recognize analogous benefits which are provided without the medium of vegetation. It is this source which gave the plant kingdom its impetus and of course persists, as otherwise plant life would perish.

We are required, then, to attribute the greater benefit of preservation of respirable oxygen to a wave influence communicated from a vast solar field, that of the universe surrounding our planet. From such a source is acquired the chemical release of oxygen from inactive or fixed combinations. To the oxygen released by such process, there is communicated valence as well as other physical or chemical properties which underlie all recognizable expression. Just as Priestley recognized a reason for the occurrence of oxygen in two forms, so has later scientific effort determined that hydrogen, the initial unit for all elements, occurs in at least two forms.

In any appraisal of biochemical activity, regard must be had for at least one generalized reaction. It is that of the splitting of the most universal of molecules, water, into two elemental forms. Water is the most harmless, necessary and adaptable molecule in the chemical field. Upon its flexibility and conforming to existing conditions, organic as well as inorganic, existence depends.

The water molecule occurs in every structure and comprises the greater part of every organic form. Through chemical activity it is split or resolved into two distinct and differently polarizable rudiments. One is hydrogen and called hydrion, the other portion is comprised of one part each of oxygen and hydrogen and is called oxyhydrion.

The hydrion particle is acidic, it is an anion or positive element and gives the measurement to and for all chemical equations. The oxyhydrion principle is negative, it is a cation element and induces an alkaline response. These two ions create the electropositive and electronegative impulses that occur in structural forms and constitute the doublet which has been mentioned. When the water molecule is split, it separates into these two free, active and combining effects or ions. Through any procedure of chemical creation or its equivalent, the restorative principle, the end result must be translated as ionization. This means that there has ensued a liberation of composing elements or rudiments of matter, which allows opportunity for a new or further fabrication of structure, a process that is called reduction or dissociation of elements with an ensuing reassemblage in some form.

In any event, the end result is the same phase of restoration of inert or inactive molecules to activity, with re-assembly in a secondary compound. Any molecular disruption is an increase in number and a reduction in size of the composing units. This is the property which is recognized as the basis of colloidal activity wherein the aggregate of units permits individual expression within a mass of associated ions, such as is designated as the existing phase.

The principle of ionization, as in the release of bound molecules, is the expression of the physical principle that is used in mechanical devices for carburetting purposes, as in gas combustion engines. It enhances metabolism, which is equivalent to speeding up of oxidation. It is a biochemical process in living structure, a chemical expression, when involving inorganic associations. It involves catalysis in either event.

Mixing chambers, supercharging, or any one of a variety of similar methods operates upon the principle of catalysis, that of rendering available for work the energizing properties that are contained within the general expression of colloidal chemistry.

The basic principles which underlie chemical reactions and the scientific benefit that reposes in biochemical response have undergone revolutionary change since the days of Priestley. Rather, let us say, the viewpoint of the scientists has oriented to the eyepiece of the microscope.

With a better understanding of colloidal effects or the value in biochemical modes of thinking, remedial science is opening a heretofore closed book. This has been induced through the principle of colloidal expression, the active principle of colloidal expression being directed to fulfill specific requirements.

Demonstrations of the newer science of biochemical activity, as directed to the restoration of disturbed physiological processes, amaze even the most indifferent.

The newer science of medicine cannot now be scoffed at, nor relegated to the oblivion of ridiculous speculation. While mere assertions do not constitute facts, neither do dogmatic attitudes nor careless practice destroy scientific truths. Too many of the subtler yet demonstrable phenomena developed in physical laboratories are standardized as essential remedial agents, in order to leave an opportunity for the pursuance of neglected methods. Nor can there be a denial of a need for every endeavor to relieve the ills of mankind to prove scientific truth.

Miracles in medicine are of daily occurrence. Hitherto, changes in cell morphology have been deemed ir-

reversible. However, now we have found that colloidal chemistry proves that reversible phases do occur, even if in greater latitude they are only called compensatory processes.

We are constantly being shown that pathological deposits do undergo solution, that rays affect, activate or even remove the specific influence of vitamins, to be succeeded in demonstrable instances by reversal toward normal structure.

Here most certainly is a resolution and movement toward histological regeneration. Herein rest compensatory processes and there is begotten a later orientation in mental appraisal of conditions with the advent of late chemical scientific exploits within biological fields. Herein, too, has been eliminated the formerly established dictum that pathology constitutes an irreversible phase.

1508 Grandview Avenue

ON SEDATIVISM

ARTHUR N. FOXE
New York, N. Y.

The history of alcohol and alcoholism is properly ancient. Drug use (abuse) or addiction in the form of opium also has its venerable pedigree. Morphinism is a medical term rarely used today. Alcohol, with variations, in beverages is used in large part to bring about social ease, gaiety, or conviviality in the individual or group. Sedatives, on the other hand, hold their eminent position by virtue of their assistance in bringing about a more peaceful withdrawal from worldly affairs, notably in the procuring of sleep. This contrast in effect is not commonly made by observers. The problem of alcohol is blatant because of its connection with social usage. Contrarily, sedatives, which are used mainly in worldly severance, occupy a more discreet position. In the medical world alcohol is not frequently prescribed; the tendency is more and more to disparage its usefulness, although this extreme view may be a part of our times; the baneful effects are described at ever greater lengths in the literature—in papers and volumes; the problem is in the open.

Sedatives, however, seem to meet with increasing favor in the medical profession; new ones appear every day. Certain sedative alkaloids, such as morphine and cocaine, have for long been under legal ban to the public. The medical profession uses morphine as a most potent and life-saving measure in many instances. Nothing made by man alone has a like effect. It has been said that a physician on an isolated island, if he were permitted only one drug with him, undoubtedly would choose morphine. It occurs to me that a modern French author expressed the view that a great weakness in medicine was that no one had been able to alter morphine so that its habit-forming quality could be dissevered from its peace-bringing tendencies.

Morphine and cocaine addiction, particularly the latter, come to notice through the deleterious effect these drugs have on the human constitution. It is an interesting bit of pertinent psychology that, whereas violations of the law in connection with these narcotics is definitely surreptitious, violations of the prohibition law in the dry era had 'speakeasy' quality in only a superficial way; the violations were generally outspoken and, as we know, quite homicidal.

The machine age, as time has shown, not only has created great technical devices for peace but *pari passu* for war as well. Each boon seems to bring its injury. The chemical age has been exceedingly successful in the creation of sedatives. Their varieties are legion. There is considerable professional insouciance over the possible injuries that are brought about by the use of these drugs. The pharmacist, of course, will not repeat an opium prescription. Not so, however, with the multitude of sedatives; they are sold rather freely, in fact, without prescription. It has been a source of wonder to me how these remedies are doled out, not infrequently with the statement that they can do no harm; in some instances they are advertised. Many physicians, no doubt, would have their hair stand on end to learn that a prescription they may have written five or ten years previously had become the divergent path for the constant and continuous use of sedatives. If a "Bloody Moloch" once "presided in the chair of medicine", one might suspect that before long a "Tarry Morpheus" may become its favorite deity. It is true that these sedatives do not seem to be so fatal as morphine or cocaine; nonetheless their ravages on body and morale easily are obvious if one looks about. In effect, they are chemical integrators or disciplines, and soothers. They close the wild and fearsome lairs in the human heart and then they must be added to and added to. They are not easily dismissed without replacement by some other more naturally human protective, physiological, psychological, or both; only then are they given up with but relative ease. Even here there are many wasted years in many lives because of general indifference to the issues involved.

It is no small part of the psychiatrist's business to undo the chemical stratification of heaped up sedation. Today, when physicians are more readily inclined to turn to the psychiatrist for help, it may be hoped that there will be less sedativism in time to come. No patient will complain against immediate surcease of his pain or anguish if he feels he is injuring himself in no other way; later he may become quite vitriolic about the physician who could do no more than casually furnish him with a box of seductively colored pills or capsules. Sometimes physicians are less able to bear the sight of pain than the patient is to endure it.

It is my sharp impression that apart from pain resulting from gross and frank disease closely followed by the physician, no patient ever should be given a supply of sedatives that would last more than two or three days. Prescriptions should be marked clearly 'do not repeat', for the patient's as well as the pharmacist's edification and instruction. Any situation lasting more than a few days requires further scrutiny for disease that may or may not be discoverable and otherwise remediable by the practitioner working alone. The need for sedatives in the absence of obvious disease or an acute and real situation of brief duration should make

one suspect a neurosis, grave character defect, or incipient psychosis. The continued use of sedatives acts only as a crutch, ever more weakening to the structures involved. The inherent characterological defect or neurosis is not readily detected by the practitioner, especially when concealed by the sedative, nor is the patient apt to reveal readily his true symptoms when he feels the sedative is at his side. It may be accepted beyond peradventure that with no other capable assistance available, sedatives are no mean blessing. Situations where assistance is not available, are rare, however. It is a truism that the more years of sedative usage, the more toilsome will be the ultimate cure of the underlying malady. One cannot be dogmatic and say that sedatives never permit the body to heal spontaneously nor that they never in some way petrify the disease, but such instances are far from the rule.

The problem has wider implications, for with so many people, and there must be millions, carrying on in life with the mere prop of sedative therapy, there must come a time when these medications will fail not only with individuals but with vast multitudes of people. Then one would not expect them quiescently to return to the healing effects of medicine. They will have felt that medicine has given all it had to offer. They will form a large mass of individuals who will turn willingly to some rigid discipline for the peace that eludes them. In some instances it may be psychiatric help. In the majority it will more likely be a turn to a psychology of a more promising, organizing, and propaganda-like type.

This is no attempt to be alarmist. The physician never should be alarmist; but he should see where his methods fail. He destroys his own science and betrays his patient by substituting dead chemical sedatives for his ever-watchful personal study, care, advice and attention. It stands earnestly to reason that if a man will sacrifice his health for sleep, he will more readily sacrifice personal rights and liberty for the same reason.

25 WEST FIFTY-FOURTH STREET

FUSION OF VERTEBRÆ

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Fusion of vertebræ is rarely found alone but is associated with other spinal abnormalities, such as spina bifida, or wedge-shaped vertebræ, and is due to an abnormal fusion of the centers of ossification (1). It may result from incomplete cleavage of the segmental sclerotomes with failure to differentiate that portion which forms the intervertebral disc, thus all, or a portion of the disc fails to form. This condition, involving two or more cervical vertebræ with the absence of the discs, in turn causing a shortening of the neck, is the usual cause of the Klippel-Feil syndrome. The more common locations are in the cervical region and the lumbosacral area.

At an early period of the development of the embryo, a layer of mesoderm appears between the ectoderm and entoderm in the midsagittal plane. The mesodermal layer soon disappears from the region beneath the neural tube. The entoderm in this region presents a plate of tissue thicker than the continuation on either side. This is the chordal plate which becomes separated from the entoderm to form the chorda dorsalis about which the vertebra and the intervertebral discs subsequently develop.

The chorda dorsalis disappears just before ossification of the vertebral bodies except for small fragments which form the nucleus pulposus of the intervertebral disc. At the time the mesoderm disappears from the region of the chordal anlage, its lateral prolongations become divided into a series of segments known as mesoblastic somites. Concomitantly with the differentiation of the chorda dorsalis, the mesoblastic somites undergo a change.

There are three stages of development: First, the membranous stage in which the mesenchyme divides into sclerotomes equal in number and corresponding to the myotomes. Each sclerotome divides into cranial and caudal portions, both of which fuse to form the primitive vertebra. The perichordal septum divides each vertebral anlage into two lateral halves. The two lateral halves fuse to form the final vertebra. Failure or delay of fusion of the two lateral halves of the vertebral anlage in the membranous stage causes hemivertebræ and platyspondylia.

The second or cartilaginous stage begins with the appearance of the six primary centers of chondrification, one for each costal process, one for each neural arch and one for each half of the vertebral body. The costal processes form the rib cartilages, the vertebral arch develops processes to form the transverse and articular processes, and each half of the vertebral arch joins in the median line to form a spinous process.

The third or osseous stage begins with the appearance of centers of ossification for the neural arches and processes in correspondence with the original cartilaginous centers. These vertebral blocks are usually congenital but, as stated by Roederer (2), in rare instances they may be due to infection or trauma.

Duban and Soleil (3) suggest that a cause may be the division of a sclerotome into a cranial and a caudal unit so that there will be two hemisclerotomes to each somite. The cranial sclerotomes then become fused to the hemisclerotome adjacent caudally. They reported a case in which the inferior portion of the fourth lumbar and the superior portion of the fifth formed a primitive sclerotome. This is the neosegmentation of Von Ebner.

Case Reports

CASE I.—Mr. G. T., thirty-nine years of age, had severe pain in his back for eight months which gradually became more pronounced. An x ray, taken on October 30, 1938, showed fusion of the lamina of the third and fourth intervertebral changes.

CASE II.—Mrs. C. B., white, aged thirty-seven, first seen October 2, 1938, was noted to have an abnormally short neck with a very low margin of the hair. There was a congenital dimple over the lower cervical vertebra, but no growth of hair at that point. She had considerable lack of motion of the neck with the head tilted

(*Continued on page* 683)

Symposium on Physical Therapy

THE GALVANIC BATH

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Introduction

While the subject of hydroelectric baths in general, and of galvanic baths in particular, is old, comparatively little has been done to find out just what happens when the human body is placed in such media. Consequently, although numerous indications have been built up for these treatments, at least by a few practitioners, the vast majority of our profession is utterly unfamiliar with them, or else decry their value. As an example of the latter, may I mention Dr. Frank Krusen, who, in his most excellent book, *Physical Medicine* (1), says: "In my visits to many of the departments of physical therapy in the hospitals of the United States, I have never seen these baths being used. I did find a full length bath in one of the older sanatoriums and took one such bath to see what it was like. The only sensation was one of light tingling of the skin; no other effects were noted." A perusal of other recent textbooks on physical therapy, fails to show so much as the slightest mention of the subject. On the other hand, Kovacs, in his *Electrotherapy and Light Therapy* (2), says, "In generalized arthritic conditions, in cases of extensive paralysis, some forms of neurasthenia, and general debility, these baths have proved useful." And the European literature is filled with instances of excellent results in a host of conditions, from arthritis and neuritis to poliomyelitis and heart disease.

It is the aim of this article to direct the attention of the medical profession to this form of treatment, and to indicate, if possible, some of its uses.

Historical

One may suppose that the origin of hydroelectric baths may be traced as far back as the time of the ancient Greeks, who, according to Pliny, used to take baths with electric eels. The first scientific observation, however, was made by Sir Humphry Davy (3), who, as long ago as 1807, noticed that if he "immersed his fingers in a glass vessel filled with distilled water, connected to the negative pole of a galvanic battery, alkalies were excreted from his body and deposited in the pure water; but if the positive pole was in contact with the water and the fingers, then phosphoric, sulphuric, and hydrochloric acids were deposited and could be detected in the distilled water." However, no advantage, clinical at any rate, seems to have been taken of this observation for many years.

The actual administration of electric baths dates back not quite one hundred years. In 1852, a gold and silver plater, a patient of Dr. Poey's in the city of New York, developed a severe ulcer on one hand, and nothing could help towards its cure. One day, in sheer desperation, the man plunged his hand into the electrochemical bath at the positive pole, and held it there for fifteen minutes, at the end of which time, the metal plate at the negative pole was covered with a thin layer of gold and silver. This was repeated daily, and after a few treatments, the ulcer disappeared. From this, Dr. Poey concluded that it was possible to extract metals from the human body. His method was to place his patients in a bath connected to the negative pole, while the patient held the positive pole in his hands. He thus claimed to have cured cases of gold, lead and silver poisoning.

Undoubtedly, many physicians and a few hospitals used hydroelectric baths in their establishments, as long as one hundred years ago. Althaus (4) in 1859, Tibbits (5) in 1877, and others discuss their value. But the modern use of galvanic baths goes back to 1902, when a real impetus was given to their administration by what appears to be another accidental discovery.

In 1902, J. J. Stanger, a German tanning master, suffering with some form of rheumatism, accidentally immersed his hands in a hydroelectric bath filled with tanning solution, and received a shock which almost killed him, but after which he was somewhat relieved of his pains. Concluding that his improvement resulted from the combination of electricity and the solution, he repeated his exposure many times, and a little more carefully, until his pains completely disappeared.

Following this accidental observation, several members of the medical profession became interested in these treatments, and a fairly comprehensive literature developed about them, particularly in France, Austria and Germany. As an example of the various indications given for the baths, a few references are noted.

Wellisch (6) reports on his good results in fifty cases, including some with rheumatic arthritis, gonorrheal arthritis, infectious arthritis, the neuritides, and one case of poliomyelitis.

Peemoller (7) describes one hundred and seventy cases of rheumatic conditions thus treated with favorable results.

Mann (8) gives as his indications, arthritic, neuritic, and myalgic affections, as well as circulatory disturbances.

Pfleiderer (9) recommends galvanic baths for chronic inflammatory conditions of the uterus and adnexa.

Barillari (10) divides the indications into four groups: 1, Neurovegetative and endocrine disturbances; 2, high blood pressure; 3, rheumatic and neuritic conditions; 4, functional nervous diseases.

Wedekind (11), in an exhaustive paper, not only describes a host of clinical observations following the use of the Stanger baths, but also goes into considerable detail to explain the rationale of these treatments.

*In active service.

Apparatus

The Stanger bath (Fig. 1) is given in a cone-shaped tub of vast dimensions, made of California hardwood and pointed at the foot. Stanger used large graphite electrodes at the head and sides, and smaller electrodes over the local areas of involvement. The main direction of the current, therefore, is transverse. The Stanger extract consists of thirty percent tannin material as the main ingredient, and small amounts of soluble organic and inorganic materials.

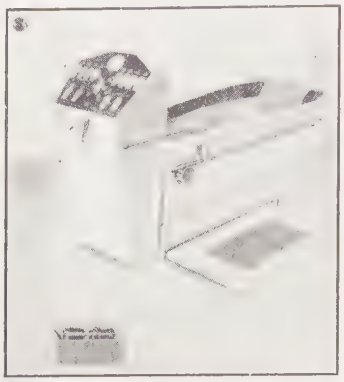

FIG. 1.—The Stanger bath.

FIG. 2.—The galvanic bath with Teca apparatus and electrodes (Kovacs, *Electrotherapy and Light Therapy*) Courtesy of Lea & Febiger.

For the past year, we have been using at the New York Polyclinic Medical School and Hospital an apparatus that seems to be an improvement on the Stanger method, and is adapted to much more universal employment in that it may be installed near any bath tub (Fig. 2). The machine (made by the Teca Corporation) uses a selenium rectifier for the production of direct and variably pulsating currents. It has two separate circuits, of four outlets each, two positive and two negative, thus permitting, if necessary, the simultaneous administration of currents to eight parts of the body. The milliammeters are fused in the circuits in such a way that an overload will immediately break the circuits, thus supplying an additional factor of safety. The electrodes consist of graphite, enclosed by specially treated wood, with sufficient interspaces for the passage of the current (Fig. 3). In all our work, we have been using a specially prepared tannin bark extract (tecasol). During the past year, under the supervision of Dr. Richard Kovacs, director of the physical therapy department, we have given several hundred treatments. Also we have done some experimental work which, while not repeated often enough to be conclusive, is sufficient perhaps, to indicate a trend that remains to be corroborated by future observations.

Technique

The technique of the galvanic general bath, as we employed it in our average treatment, was as follows:

The temperature of the bath was 98° to 104° F. For the average tub six ounces of tannin bark solution are used. Place a large triple electrode under the upper back, and connect to the positive pole, a smaller electrode under the feet and connect to the negative pole, side electrodes are connected to the positive pole and a center electrode to the negative pole. Give a five minute treatment to toleration. Then disconnect the head electrode, replace the center electrode with a massage applicator, and connect the foot electrode to the positive pole. Give general massage of the entire body and emphasize the individual parts under treatment. This should take about ten minutes. Then return to step one except that the polarity should be reversed for five minutes. Shut off the current. The patient is then dried, covered, and allowed to rest for half an hour. At subsequent treatments the total time of the bath may be increased to one-half hour.

From a study of our work it would seem that in giving whole galvanic baths we do penetrate the human tissues. The question then arises, what happens to the tissues in the path of the current, as a result of its passage? The answer may be considered under two headings: 1, physical; 2, chemical.

Physical Effects of the Galvanic Bath

When a patient is immersed in a galvanic bath containing plain water (tap), as much as thirty-three percent of the current goes through the patient (Wedekind, 11). However, the voltage required for such high percentage of current is too great for ordinary comfort, and with tolerable voltages, as our experiments show, the current going through the patient is much less than thirty-three percent. If, on the other hand, an electrolyte, such as salt, is added to the water, the current will go almost entirely through the water, and thus very little will go through the patient. Therefore, it becomes necessary to find a substance of such composition that will allow a fair proportion of current to go through the patient at a tolerable voltage. Tannin bark extract, used in the Stanger solution as well as in tecasol, seems to meet this requirement.

To ascertain what proportion of current goes through the patient the following experiment was made:

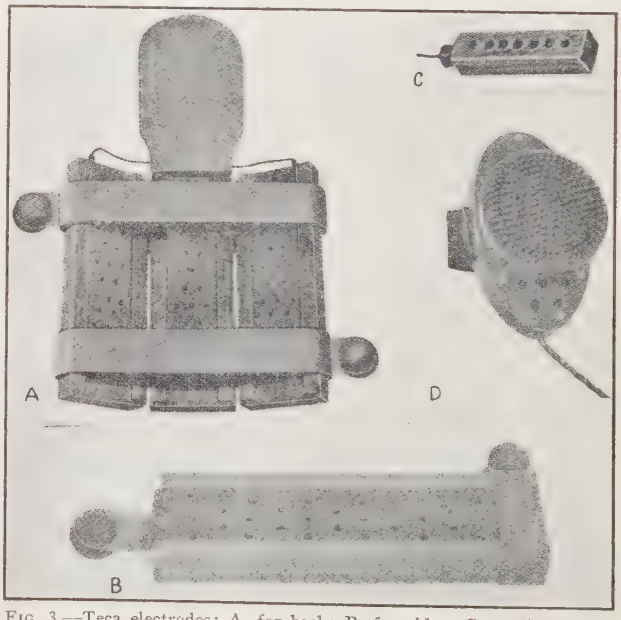

FIG. 3.—Teca electrodes: A, for back; B, for sides; C, applicator, and D, electric brush.

The tub was filled with tecasol (six ounces to the average sized tub), and a series of measurements were made to compare the relation of volts to milliamperes with the increase of current. Both tests have also been made in order to find out which technique and which way of current flow may prove to be most valuable.

The longitudinal technique, with a current flow from

head to foot allowed at the point of toleration, about twenty percent of the current used to flow through the patient. Another longitudinal arrangement, namely, from the head to the sides, also showed that at point of maximum toleration about twenty percent of the current passed through the body. The experiment with a purely transverse flow from side to side showed an equivalent to about fifteen percent of the total current flowing through the body. In another transverse arrangement with the current flow from both sides to a central electrode, only about ten percent of the total current passed through the body.

The two-circuit Teca technique with a combined longitudinal and transverse current flow (Fig. 4) proved to be superior to any single circuit technique used in the above mentioned experiments. It is well to note that with this technique there is close approximation of tissues to the electrodes.

The percent of current-flow through the body with the transverse technique, in which the tissues are not in approximation with the electrodes, is appreciably less than with the longitudinal technique. Anyone who exposes himself to both techniques will immediately feel the difference. It would, therefore, seem that the addition of the longitudinal technique is a definite improvement over the transverse technique of Stanger, and should be used in conjunction with it when maximum current energy through the body is desired.

In our work we have used the combined longitudinal and transverse techniques with a center electrode. In this way, every part of the body can be influenced by the treatments at will.

Repeated measurements taken between two parts of the body, such as back of neck and feet, before and after a galvanic bath, show a definite increase in current and voltage readings after such bath. This increase is greater than after a plain hot water bath. There also seems to be a directional pattern which, with our technique, invariably shows a current flow from head to foot, outside of the body; also from left to right. One might compare this physical change with that observed in a battery after being charged.

A second physical change, even more definite, following a galvanic bath, is an increase of heat radiation from the skin. This, as Wedekind showed, is greater after a galvanic bath with tannin bark extract than after either a plain hot galvanic bath, or a hot bath with bark extract, but without current. This heat radiation from the skin was greater not only in extent, but also in duration. Thus it may be said that the galvanic bath intensifies the action of the hot water bath, and prolongs its effects, as far as the radiation of heat is concerned.

Chemical Changes in Tissues

When a current flows through an electrolyte, three processes take place:

1. Dissociation: the molecules divide into positive and negative ions.

2. Iontophoresis: the negative ions travel to the anode or positive pole, the positive ions travel to the cathode or negative pole, and new compounds are formed.

3. Electrophoresis: molecules which do not have the property of dissociation may become positively or negatively charged, and like ions travel to the opposite poles.

These statements are common knowledge as far as currents in vitro are concerned. Is there any evidence to show that similar changes occur in vivo?

Wedekind had already shown that, following a galvanic bath, there was a definite increase of electrolytes in solution. This increase is greater after a galvanic bath with bark extract than after a hot bath with the same extract. There thus appears to be an increased elimination of electrolytes, which apparently can come only from the body. But this still does not answer the question as to what, if any, chemical changes take place within the body following such a bath. It was therefore thought advisable to examine various body fluids before and after such treatment. The fluids chosen were, 1, the blood; 2, the saliva; and 3, the gastric secretion following a test meal. In the first two, a reading was taken of the pH and voltage before and after a bath, and, in the case of the gastric studies, there was an examination made of the total acidity and free HCl after a galvanic bath, as compared with a plain hot bath. To standardize our figures and to eliminate the heat factors as much as possible, all baths were started at 98° F., and in all cases we used a current of toleration. The pH determinations were made by Albert Glaubiger (12), using a Young electron ray meter in conjunction with a MacInnes Belcher durable condenser type electrode. The gastric studies were made by Dr. Paul F. Franklin, on the service of Dr. David Meiselas at the Jewish Sanatorium for Incurables. Tables I, II and III show the effects on blood, saliva and gastric secretion respectively.

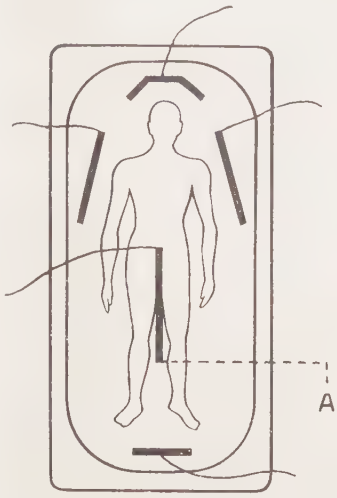

FIG. 4.—Combined longitudinal and transverse current technique of galvanic bath treatment. A, double throw electrode.

Table I: Effect of Galvanic Bath on Blood

	PH BLOOD SERUM	E (VOLTS)
Patient 1:		
Before galvanic bath	8.05	0.3760 (26° C.)
After " "	7.90	0.3695 "
Patient 2:		
Before galvanic bath	7.55	0.3505 "
After " "	7.56	0.3510 "
Patient 3:		
Before galvanic bath	7.53	0.3495 "
After " "	7.51	0.3490 "
Patient 4:		
Before galvanic bath	7.48	0.3470 "
After " "	7.46	0.3455 "
Patient 5:		
Before galvanic bath	8.23	0.3800 "
After " "	7.43	0.3350 (26.6° C.)
Patient 6:		
Before galvanic bath	8.08	0.3815 (29° C.)
After " "	7.69	0.3555 "

The blood was drawn in one institution and then transported to another institution during a time interval of one hour or longer. The blood was allowed to clot and the serum used. It is therefore questionable whether

the figures given represent the true picture at the time of withdrawal. They are mentioned here merely for comparative purposes and should be interpreted as such. Further studies should be made along the same lines.

Comment: Discounting the factor of travel and variation in temperature, and merely comparing the figures, one comes to the conclusion that after the galvanic bath there was a slight decrease in the potential of the solution, and a slight decrease in the pH of the serum (except patient 2). Therefore, it would seem that the galvanic bath has a tendency to reduce the normal alkalinity of the blood.

Table II. Effect of Galvanic Bath on Saliva

	PH	E (VOLTS)	DEG. C.
Patient 1.			
Before galvanic bath	6.92	0.3065	26
After " "	7.85	0.3610	26
Patient 2.			
Before galvanic bath	6.70	0.2950	26
After " "	7.13	0 3230	26
Patient 3.			
Before galvanic bath	6.31	0.2780	26
After " "	6.47	0.2865	26

Comment: The galvanic bath seems to produce a rather marked increase of the pH, and a rise of the potential of the saliva. Therefore, it may be concluded that the tendency of the galvanic bath is to make the saliva more alkaline.

Patients taking a galvanic bath will often remark upon the sensation of a metallic taste in the mouth. This sensation may perhaps be accounted for by an increase of sodium ions in the saliva.

Table III. Effect of Galvanic Bath on Gastric Juice

Procedure: A test solution consisting of fifty cc. of seven percent alcohol was given to the patient on an empty stomach and a gastric extraction made after a plain bath (P). The following day a similar solution was given and an extraction made after a galvanic bath (G). The results were as follows:

Gastric Juice Changes after a Galvanic Bath As Compared with a Plain Bath

CASE	BATH	DATE	FREE HCL	TOTAL ACIDITY
1.	P.	8/13/42	0	3.5
	G.	8/14/42	0	2
2.	P.	8/13/42	0	2.5
	G.	8/14/42	0	6
3.	P.	8/13/42	22	39
	G.	8/14/42	17	35
4.	P.	8/14/42	36	59
	G.	8/17/42	55	68
5.	P.	8/14/42	2	18
	G	8/17/42	0	8
6	P.	8/17/42	7.5	28.5
	G	8/19/42	26	40
7.	P.	8/17/42	16	33 5
	G.	8/19/42	4	18
8.	P.	8/17/42	45	62
	G	8/20/42	50	65
9	P.	8/20/42	4	23
	G.	8/21/42	0	7
10.	P.	8/20/42	54	71
	G.	8/21/42	47	60
11.	P.	8/21/42	47	60
	G.	8/22/42	50	70

In one case (11) a comparative study was made of the pH and the findings were in line with the results of the gastric analysis.

Comment: The variable changes produced by a galvanic bath may be attributed to the resultant of three factors: 1, The effect of the heat; 2, the effect of the current going through the body; and 3, the relaxing effect of the current acting on the skin (not including the psychic element).

From a study of this test the conclusion may evidently be drawn that the action of the galvanic bath is not the same as that of the plain hot bath alone.

The point to be emphasized is not that changes occurred in the body fluids in one direction or another, but rather that even with the short time and the mild currents used in our work changes did occur in the tissue fluids. One can readily see that given a longer period of time, and a stronger current, much greater changes might be anticipated.

Physiological Effects

The physiological effects of the galvanic bath may be ascribed to three factors: 1. The temperature of the bath. Since this is usually 98° or over, we may say that the physiological effects are those due to mild heat. 2. The passage of galvanic current, depending on the type, strength and duration. 3. The tannin bark solution.

1. The Heat Effect

We have already shown that the galvanic bath with tannin bark solution produces an increased heat effect upon the skin, as well as a prolongation of its action. The physiological effects, therefore, of these baths will be an intensification of the action of heat upon the tissues. Briefly summarized, the effects of heat are (Kellogg, 13):

A. On the skin.—1, Dilatation of the capillaries; 2, an increase of cutaneous secretion and respiration; 3, increased loss of heat; 4, decrease of tactile sensibility.

B. On the muscles.—1, Lessened irritability of the voluntary muscles with mild heat, exhaustion if the bath is very hot and prolonged; 2, increased irritability, if the application is hot and short, and relief of exhaustion; 3, increased irritability of involuntary muscles, e.g., the production of goose flesh.

C. On the nervous system.—1, Direct: Sedation, if the temperature is neutral (92° to 95°); increased excitability followed by exhaustion if temperature is hot (100 degrees or over) and prolonged. 2, Reflex: Warm or hot baths stimulate the vasodilators; very hot baths produce a temporary vasoconstriction.

D. On the blood.—Diminution of red blood cells and hemoglobin (retention of cells in viscera).

E. On nutrition.—Increased metabolism.

2. The Galvanic Current

One would expect the action of the galvanic current upon tissues in a galvanic bath to be no different from that upon similar tissues outside of the bath medium. And such is the case. Ordinarily the galvanic current acts upon tissues in two ways, i.e., as a continuous current, the effects of which may be ascribed to iontophoresis, and as an interrupted current, the effect of which is to stimulate muscles and nerves.

A. Iontophoresis.—That the galvanic current can cause a transfer of ions to the body, while in such a bath, has been shown in the discussion of the historical development of these baths and in the experiments

noted. To ascertain whether an ion transfer actually takes place, Wedekind attempted to force salicylic acid into the tissues by means of a galvanic bath. He found that with the use of the galvanic current, an examination of the urine after such a bath revealed the presence of salicylates, while no such compound could be found after a plain bath. It seems rather hard to understand that more investigations have not been made along these lines.

B. Muscle-nerve stimulation.—As is well known, the interrupted galvanic current is one of our mainstays in the treatment of weak or paralyzed muscles and nerves. Placing such tissues in a warm bath could only enhance the action of these currents, both because of the warmth and because of the buoyancy of the water. For the purpose of stimulation the following technique is used.

The body is immersed in the bath and all electrodes are attached to the positive poles. A special small applicator (Fig. 3, C) is attached to one negative pole. By gently moving this applicator over the tissues a variable stimulation is produced, depending on the strength of the current. With moderate current strengths, muscular contraction is easily obtained.

Where multiple areas of the body are involved, this technique is much more efficient than the ordinary stimulation heretofore used. Incidentally, in the absence of paralysis, this same technique with the applicator will produce a very efficient massage action under water, and act as a strong stimulation to the skin. For the purpose of skin, as well as muscle-nerve stimulation, we have often found it advantageous to use the more pulsating currents available with the apparatus.

3. Effect of the Tannin Bark Solution

In spite of the claims of some authors, it is doubtful whether the addition of the extract has any physiological effect in itself. As already noted, it is useful, however, in that, by its use, less irritating voltages may be administered for ordinary treatments and it makes the sensation of the current on the skin more agreeable. Furthermore, because of its dark color, the immersed part of the body is completely invisible, an important element in the treatment of sensitive patients.

Clinical Uses of the Galvanic Bath

A consideration of the physical and physiological effects of the galvanic bath, as well as an analysis of the treatments so far given, leads to the tentative conclusion that the galvanic bath may prove useful in two broad groups of conditions, namely, those that may be benefitted by the administration of heat, and those in which there is an indication for muscle and nerve stimulation.

Any illness or disease in which heat is indicated, may be considered an indication for galvanic baths. This is particularly true in multiple involvement of tissues. Under this head may be mentioned all types of arthritis and rheumatoid conditions, neuritis, myositis, fibrositis, vascular spasm, and muscle spasm. Since, as already shown, the galvanic bath intensifies the effect of heat and prolongs its action, the temperature of such a bath need not be as high as that of an ordinary hot bath. Practically, we seldom exceed 100°.

The second group of indications mentioned, namely, muscle-nerve weakness or paralysis, should be considered for galvanic baths, especially if there is multiple involvement. Here may be mentioned a condition that is particularly prevalent in war time, i.e., fatigue, not only among civilians, but especially among the members of our armed forces. All of these, wherever possible, should be given these galvanic baths as part of the general program for the conservation of manpower.

Many cases can be cited where definite improvement may be attributed to the galvanic baths. Perhaps two typical examples will be sufficient.

Typical Cases

Case 1.—H. B., a man, aged forty-five, an insurance broker, was assisted into the office on September 9, 1941, and gave a history of weakness and severe pains in both lower extremities. He had been a diabetic for many years, and since childhood had suffered from cardiospasm. The weakness and pains in both lower extremities had been developing for over a year and had grown progressively worse. The patient had spent the preceding summer at Sharon Springs and noted some improvement, but on returning to the city immediately became worse. He had received strong doses of vitamin B intramuscularly and intravenously. The diagnosis, made by several consultants, was multiple neuritis due to avitaminosis. The patient was given an intensive course of physical therapy to both lower extremities, starting with fever treatments once a week for five weeks at the Beth Moses Hospital, and continuing with short wave diathermy followed by histamine iontophoresis three times a week for five months. Improvement was very slight.

In February 1942, the treatments were changed to galvanic baths with improvement from the very beginning. After one month, the patient began to regain strength and the pains were lessened. After another month he was able to discharge his chauffeur and drive his own car. After the third month he felt well enough to resume his full duties. On July 3rd he stopped treatment. In answer to a recent inquiry he said that but for occasional shooting pains in his left ankle, he was in excellent shape and was doing more than a full day's work.

Case II.—E. H., aged thirty, a nurse at the Polyclinic Hospital, gave a history of progressively developing arthritis, for over twelve years, with constant pain and stiffness and deformity of the fingers. She had been through all the routine treatment without improvement and had been obliged to give up her duties as operating room nurse. The galvanic treatment was begun in December 1941, with improvement from the beginning. After seven months of treatment, pain and stiffness of the fingers had almost completely disappeared. She has resumed her duties in the operating room.

More such cases could be cited, but there would be no point in doing so. Again it must be emphasized that in giving these treatments we have not deprived the patients of other forms of therapy that might prove useful. Hence at present no claim is made for the galvanic bath as being a panacea, or even a specific in any condition. All that is claimed is that evidence so far has shown that these baths are a real help in the conditions indicated and should be used for these in-

dications in conjunction with the usual regime prescribed in such cases.

Contraindications and Dangers

There are no real contraindications to galvanic baths. Any supposed contraindications may be eliminated as such, merely by the more careful administration of these treatments.

As to possible dangers, galvanic baths should not be given with just any galvanic machine. The chief danger is the possibility of electric breakdown and exposure of the body to the house current; for instance, if the patient touches any ground in or near the bath tub while a machine is being used which is not completely ground free. Too many accidents have occurred under such circumstances, and this may be one of the reasons for the unpopularity of these treatments in this country. The equipment used for the galvanic bath must be especially built for the purpose and must eliminate any danger of accidents. The machine which we have been using for our treatments has proved to be completely safe and to fulfill all requirements. The power source is completely ground free and the safety devices which are incorporated seem to eliminate any danger whatsoever.

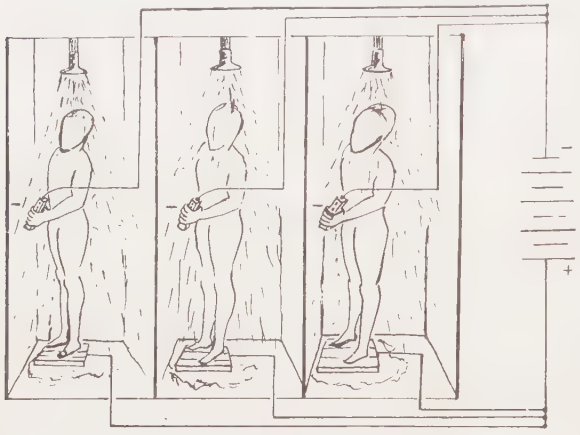

FIG. 5.—The galvanic shower.

The Galvanic Shower

Before closing this article, I should like to describe a technique which I have devised for the administration of a galvanic shower (Fig. 5). The machine used is the same as that used for the tub baths. One electrode is placed under or near the feet and covered with a thick layer of cloth or other perforated material. In one hand the subject holds an applicator, consisting of a conductor enclosed by an insulating medium, such as wood, on all sides except one, which is covered with a strong fiber, or like the Teca applicator with a very thin layer of perforated wooden material. The hand electrode is attached to the negative pole and the foot electrode to the positive pole. As the shower is turned on, the hand electrode is manipulated with gentle friction over the entire body.

The temperature of the water should be 104° (hot) for the duration of the shower, except that just before its termination the temperature should be lowered to 90° (cool) with the massage persisting for a few seconds. This technique should prove useful in the case of soldiers who are fatigued and require an immediate pick-up treatment. For healthy people, its advantage over a galvanic bath is that it lends itself to universal employment by entire groups, and does not have to be individualized to a particular patient under treatment.

Summary

1. The galvanic bath is of value to the physician and seems particularly indicated in the management of rheumatic conditions, neuromuscular weakness and paralysis, especially where there is multiple involvement, and general fatigue, due to overstrain.

2. The effects of the general galvanic bath may be attributed to its intensification of the action of the hot water, both as to the degree and the duration, as well as to the direct and reflex action of the current upon the tissues and to the chemical changes produced within the body.

3. The general galvanic bath has not been used extensively, perhaps because the apparatus and techniques available were not conducive to the production of clinical results commensurate with the effort that had to be expended. This defect has been remedied by the introduction of a simplified technique which, with the apparatus now available, allows the efficient adminstration of these baths, not only in the office but even at the patient's home.

4. With our country at war, and with the possible limitation of high frequency currents on account of radio interference, it becomes even more essential for those of us who may be asked to treat war injuries seriously to consider whether galvanic treatments may not be of definite help in the early and optimum rehabilitation of those suffering from injury or disease.

5. A new modality is described in the form of the galvanic shower, in the hope that an attempt will be made to determine its value in the toning up of athletes as well as members of our armed forces.

Conclusion

The clinical results and the experiments described warrant a renaissance of the galvanic bath among the medical profession in general, and in particular among specialists in physical medicine.

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614 EASTERN PARKWAY

THE NONSURGICAL TREATMENT OF CALCIFIED BURSITIS*

A Definite, Safe and Painless Method

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During the past few years, a number of articles on bursitis with calcium deposits in the shoulder have appeared in various medical journals. The authors of some of these articles are surgeons, who probably have had good experience in surgery, but, apparently, have a poor knowledge of physical therapy. Nevertheless, these surgeons have applied the latter form of treatment in bursitis. In their failure to produce results, they condemned physical therapy as a useless procedure and cheerfully advocated surgery as the sole relief and cure for this malady.

In contrast with that line of action, it is worthy of mention that the famous surgeon and authority on bursitis, Ernest A. Codman, of Boston, who was a great humanitarian, deplored the necessity of employing surgery in calcified bursitis which was practiced in his day because there was no other method for its cure. Hoping to find a nonsurgical method, he endeavored ceaselessly, but failed. I believe that if this great surgeon and friend of humanity were alive today, he would rejoice to see that his hopes had materialized.

Indeed, it is not necessary to operate or to employ unsafe and painful methods such as intravenous therapy or "irrigations" for calcified bursitis. Physical therapy (in the hands of the proper worker who is backed by scientific knowledge, skill, and experience) has given us a *definite* form of treatment offering most desired results in over ninety-five percent of the cases treated. The method, which is described in this article, is wholly safe and painless. It is the result of many years of strenuous work devoted to clinical physical therapy research in my two clinics: at the Mount Sinai Hospital, where I was in charge for ten years (resigned in 1936), and at the Stuyvesant Polyclinic Hospital, where the treatment is employed by me today, also at my other clinics, e.g., Beth David Hospital, and in my private practice.

There are four definite conditions one has to deal with in the treatment of calcified bursitis: the acute pain, the calcium deposits, the adhesions, and the muscular atrophy. Their management will be discussed in detail. Before I proceed, however, I wish to emphasize two points which the operator has to bear in mind in the treatment of the malady in question. These points, which are designated by me as therapeutic rules are little appreciated by the medical profession as can be shown by reviewing the most authoritative literature on calcified bursitis. They are as follows:

1. No heat, in any form, should be employed in acute bursitis. It aggravates the symptoms and prolongs the acute and subacute stages.

2. Short waves or infrared radiation should not be regarded as a definite thermal measure to cause absorption of calcium deposits. These modalities do not exert the desired absorptive effect on calcium deposits. The only heat-giving modality, which is specific for that purpose and offers the best results possible, is the long wave (conventional) diathermy. This is my observation (1, 2).

Rule two shows that the statement made by a writer (3) on bursitis that the application of heat by *one modality or another is therapeutically sound,* is, from the point of application of the proper thermal measure in calcified bursitis, therapeutically unsound. The same writer continues: "But the application of heat is sound *as an adjuvant* rather than a primary or basic form of treatment" (of the calcium deposits). I wish to assure that writer that *heat is the primary and basic form of treatment for calcium deposits,* providing one is employing the proper thermal measure, which is, in this case, as stated above, the long wave diathermy. Nevertheless, short wave diathermy may also give some results, for Solomon and Morton (4) claim twenty-four percent cures by short wave diathermy treatment, using the electromagnetic induction coil[1]. However, the patient is entitled to the treatment which offers the best results[2].

While rule two is based on observation and experience, the rationale of the first rule rests on the basis of the pathology and physiology of acute inflammation confirmed of course, clinically. This is discussed elsewhere in my work (5).

Management of the acute pain[3].—It is important for the physician to be able to relieve the agonizing pain which the bursitis patient suffers as a result of the acute inflammatory process. This is accomplished by adhering strictly to rule one and by employing ionization with magnesium sulphate. Employing various drugs in my ionization research on many thousands of patients suffering from a variety of disorders, including bursitis, I found that the magnesium ion transfer offers a definite form of treatment for the relief of the most agonizing pain in acute bursitis.

The ionization technique.—Prepare a pad of gauze of a thickness of fifteen to twenty layers and of a size large enough to cover the shoulder to be treated (say five inches by seven inches). Wring out the gauze from a one percent solution of magnesium sulphate and apply it to the shoulder, covering especially the entire region of the inflamed bursa. Place on the gauze a piece of blocked tin, say three inches by five inches. Both the gauze and the metal constitute the active electrode. It is held in place by a bandage. The metal is attached to the positive pole of a galvanic apparatus.

*From the Department of Physical Therapy, the Stuyvesant Polyclinic Hospital, Beth David Hospital, and private practice.
Read before the Medical Staff of the Stuyvesant Polyclinic Hospital, April 8, 1942.

[1]X ray, static electricity, and the sinusoidal current are also useful to some extent.

[2]In a personal communication Dr. Kovacs advised me that in his hands short waves gave about seventy-five percent results. The author's method offers the best results obtainable at present, over ninety-five percent.

[3]In 1936 I was invited by the New York Academy of Medicine to partake in the Annual Graduate Fortnight. My subject was to be "bursitis", and I prepared an exhibit on the therapy of this malady. During the fourteen afternoons and evenings, I discussed bursitis with probably three thousand physicians, judging from the number of reprints on various topics including "bursitis", I distributed. The striking feature was that practically all of these physicians were much interested in the management of the acute stage, probably because it is often poorly or even wrongly discussed in our literature.

Prepare another electrode (inactive) in the same manner, except that it is larger (say, gauze seven inches by ten inches and metal piece four inches by six inches) and is soaked in plain warm water. It is placed over the region of the spine opposite the affected shoulder (or the patient sits on it) on the *same side of the shoulder treated to avoid crossing of the current.* The metal of this electrode is attached to the negative pole. The current which is a straight galvanic, is now opened and gradually increased to the patient's tolerance. We usually allow one to two ma. for each square inch of the metal piece of the active electrode; time, twenty to forty-five minutes.

Temperature of the solution.—The more acute the pain, the colder should be the solution. *Its temperature* is gradually increased with the subsidence of the acute pain.

After the seance is completed the gauze on the shoulder is left undisturbed *in situ,* for the purpose now of serving as a "compress" (the metal is, of course, removed). It is covered with oiled silk over which cotton or flannel may be placed, if the weather is cold, and held in place by a bandage. The patient with this "compress" on his shoulder is sent home to return the next day for the same procedure. He is instructed to keep the compress moist and cool by instilling cold water into it, now and then. Four to six treatments are usually sufficient to control the most severe pain in the acute stage.

I have frequently noticed that the more severe the pain, the greater the agony, the more dramatic is the desired result, as shown by the following case reports:

CASE I.—A laborer, aged thirty-eight, contracted an acute calcified subdeltoid bursitis. His physician, in order to relieve the pain, administered an injection of morphine and applied heat (diathermy) to the acutely inflamed shoulder. The patient felt relieved for two hours, when the pain returned with greater severity. The doctor repeated the treatment. This was done for three days with the result that the pain grew progressively worse every time the effect of the morphine wore off; and the patient, according to his statement, became nearly insane and was on the verge of committing suicide because of the unbearable pain. He was referred to me by his physician. Four ionization treatments relieved his suffering.

CASE II.—Mrs. B., an intelligent woman, aged thirty-two years, the mother of two children, suffered from subacromial calcified bursitis. She was treated by her physician, also in a clinic, with diathermy. The pain grew increasingly worse and drove her almost insane. She became very despondent, as the medical efforts were so disappointing, and she began to talk of suicide. In this condition she came under my care. Five treatments, given on consecutive days, brought complete relief to the suffering woman.

Rationale of the Method and of the Particular Ion Transfer Employed

To begin with, I consider it important to emphasize that trauma, according to my investigation (and that of many other workers), is the most potent etiological factor in bursitis, even though the patient is unaware of it. I also wish to assure the reader that the magnesium ion transfer, as I have observed, has a definitely favorable effect on clinical conditions due to trauma. It controls the inflammatory process, rapidly relieving the pain. I have observed this in thousands of patients in my research on the effect of ions of various drugs such as magnesium sulphate, sodium salicylate, lithium, iodine, etc., on strains, sprains, traumatic arthritis, bursitis, etc. It is purely an empirical discovery but one of those for which I am able to offer a scientific explanation. I am making this statement because, for many therapeutic phenomena which were observed by me and by other workers in the employment of certain physical therapy modalities, no scientific explanation is available at present. For instance, I noticed a remarkable therapeutic effect of infrared rays on the pain in otitis media acuta (6) (nonsuppurative), and so did Humphris of London (7). This great scientific worker [Humphris] states that he is unable to account for the mysterious influence of the infrared rays on that pain. I, too, am unable to account for it. I have also observed a definite favorable action of the infrared rays on myositis (8). I studied this therapeutic effect for a period of four years in my clinics on a great number of patients. I have not noticed it to be possessed so definitely by any other heat-giving modality. Hyperemia can not, therefore, be considered as a possible factor in the results obtained. We are thus unable, at present, to account for these therapeutic phenomena[1].

Fortunately we are able to do so in other observations; e.g.: An interesting therapeutic phenomenon, which I discovered, is the unmistakable curative effect exerted on the ulcers of erythema induratum of Bazin by the ultraviolet rays when passed through a Wood's filter, while the nonfiltered rays were totally useless (9). These ulcers, as is well known, resist stubbornly every form of treatment. The following biophysical consideration may account for the therapeutic effect of the filter. An ultraviolet apparatus in action emits two kinds of bands of rays, long ones and short ones. The former are called biotic because they are constructive, the latter abiotic because they are destructive. A Wood's filter transmits only the long rays, excluding the abiotic ones. It is the long rays that seem to possess the therapeutic qualities which are responsible for the healing of the ulcers. They possess, also, as I have observed, a drying and shrinking effect. These properties are indispensable for the cure because the pathological tissue is imbued with an abundant exudate, which is one of the causes of its resistance to therapy. Furthermore, the biotic rays, in the light of our present knowledge, have a specific healing effect on open tuberculous tissue. Histologically, the tissues of the ulcers of Bazin's disease resemble exactly tissue attacked by tuberculosis bacilli, although the bacilli were seldom, if ever, isolated from that disease.

These and other therapeutic phenomena were discovered by trial and error. Likewise in the case of bursitis, it was by trial and error, coupled with wide experience that I was able to convince myself of the specific favorable action of the magnesium ion on the agonizing pain in the acute stage. While I cannot give the exact scientific relation between the magnesium ion and the acute pain, I am, however, able to offer plausible reasons for its therapeutic effect, when employed in ionization.

[1]The author, on the basis of his latest observation, experience and scientific considerations, believes that the favorable action of the infrared rays on the pain in otitis media and in myositis is due to the deep penetration of these rays and their analgesic effect.

In acute bursitis, just as in any other *itis*, there are three main factors which are responsible for the production of pain: disturbance in the hydrogen ion concentration, hyperemia and edema. The ionization with magnesium sulphate takes care of these factors.

Indeed, in acute inflammation, local or systemic, due to trauma or disease, a disturbance in the normal ratio of the hydrogen ion (H) concentration and hydroxyl ions (OH) takes place in the body fluids of the involved tissues: the hydroxyl ions increase. With the increase of these ions the alkalinity rises. Alkali is an irritant and when present in a relative excess, becomes a factor in the causation of pain. The ionization with magnesium sulphate (i.e., the magnesium ion) causes the tissue to lose alkali, resulting in the relief of pain. Furthermore, the positive pole, which is employed in this ionization and placed in the region of the disease, liberates oxygen from which acid is formed. The acid replaces the excess of the alkalinity, i.e., the excess of the hydroxyl ions, influencing the restoration of the normal ratio of the two kinds of ions. The positive pole also acts as a vasoconstrictor. This physiological effect results in lessening of the hyperemia. The magnesium ion has also a definitely favorable action on local edema (10). Both edema and hyperemia are cardinal elements in the pathological physiology of acute inflammation. They are causative factors in the production of pain because of the pressure they exert on the acutely inflammed tissues. Finally, magnesium sulphate is characterized by its anesthetic effect, so much so that it has been substituted for cocaine in some surgical operations (rectal). This anesthetic effect is enhanced by the process of ionization and is greatly responsible for the relief of the pain.

Aside, however, from any scientific basis for this form of treatment, it is the desired result obtained in many hundreds of patients that confirmed its definite therapeutic value in acute bursitis.

The following case report may serve as an illustration of the specific effect of the magnesium ions on the acute pain in bursitis, where ions of other drugs, such as salicylate and lithium, have failed.

Case III.—Mrs. T., aged forty-two, suffered from generalized chronic rheumatoid arthritis of rather mild severity for which she was treated in my office. Not infrequently, one joint or more, usually of the upper extremities and of the distal phalanges (she also had Heberden's nodes), would present severe symptoms, improve under treatment, and recur some time later. One day she came complaining of pain in the shoulder and wrist joints of the right arm. The pain was worse in the shoulder joint. I thought it was due to an exacerbation of her arthritic condition in those joints.

I employed sodium salicylate ionization, which I found in my extensive experience (10) to be specific in rheumatoid arthritis. The wrist joint felt better, but not the shoulder. This joint was not relieved by the salicylate nor by the lithium ionization, which I have also tried, because of certain considerations after the former failed. The condition progressed slowly, gradually, but surely to a climax of some kind. Indeed, one morning she came complaining of severe pain in that shoulder. She, apparently, was in great agony. Examination showed that an acute subdeltoid calcified bursitis had developed. The process that stubbornly resisted the salicylate and lithium ionizations reached its climax. (A radiogram of the shoulder confirmed the diagnosis.) The patient was immediately put on magnesium sulphate ionizations; four treatments completely relieved the agonizing pain.

The reader will note that the ionization with sodium salicylate (and lithium) did not act beneficially on the shoulder pain. This was so because the disease was not acute rheumatoid arthritis, for which the salicylate ion is specific, but acute bursitis. The latter, however, responded quickly to the proper ion transfer, i.e., to the magnesium ion.

Hydrotherapy.—If the surgeon is unable to administer the iontophoresis, he should employ cold applications in the form of a Priessnitz compress instead and instruct the patient to keep it constantly moist and cool by instilling some cold water into it now and then. If the pain is too severe, an ice bag placed on the compress may be of service. The treatment is kept up until the acute symptoms have disappeared. It is, however, important to emphasize that the effect of the hydrotherapeutic measures can in no way be compared with the rapid pain-relieving effect of the ionization above described. It is, indeed, a godsend.

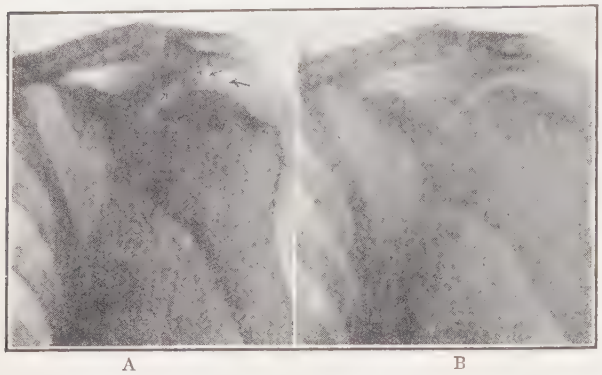
The subacute stage.—The application of a moderate amount of heat by one modality or another is employed, with or without massage, in the subacute stage. If the heat aggravates the condition, it is a sign that the inflammation is, as yet, not completely controlled. A few more ionization treatments or cool compresses should be used. The application of heat in this stage serves a double purpose: as a test to learn whether the inflammation is under control, and, to accustom the pathological shoulder to the thermal measure which will soon be employed to cause absorption of the calcium deposits. No specific modality is, therefore, indicated in this stage. Any heat-giving apparatus will do, but diathermy is preferred.

Treatment of the calcium deposits (the chronic stage).—As soon as the shoulder is in a position to tolerate sufficient heat, the next step is to start the application of thermal energy in order to cause absorption of the calcium deposits. For this purpose, in accordance with rule two, we employ, for best results, long wave (conventional) diathermy.

The careful observations made in my extensive clinical experience have convinced me of the fact, that of all the armamentaria we possess today which are capable of causing absorption of calcium deposits, such as x ray, static electricity, long wave and short wave diathermy, the most useful one is the long wave (conventional) diathermy. It is specific. It presents the greatest percentage of *cures* in cases of calcified bursitis. It is, of course, also most useful in the removal of calcium deposits in joints or other pathological conditions, e.g., osteoarthritis (10).

The diathermy technique.—Various methods are employed, such as the lateral, the cap method, etc. The cap method is believed by some to be more suitable for subacromial bursitis. I have found, however, that the following method, which is the simplest in technique, is very efficacious for all locations of calcium deposits in the shoulder. Two metal electrodes of equal and sufficient size (four by five inches or larger) are placed on the shoulder joint, one on its anterior surface, the other on its posterior surface, so that the calcium deposits are between them, and are held in

place by a bandage. The wires from the diathermy apparatus are attached to the electrodes. The current is opened and gradually increased to the patient's tolerance (800 to 1200 ma.); time, twenty minutes, gradually increasing to thirty and even forty-five minutes. From twelve to forty treatments are usually necessary for a cure, depending on the size and density



A B

FIG. 1.—Case III. Diagnosis, calcified subacromial bursitis.

A. Before treatments in my office and after thirty or more short wave treatments received elsewhere. The short wave treatments, alluded to in the text, had no favorable effect on the condition

B. After treatments, when the patient was totally without symptoms and was pronounced cured.

of the calcium. The treatments are given daily, or three times a week. If the roentgenograms are taken after each series of eight to twelve treatments they will show a gradual diminution of the shadow of the deposits until finally the roentgenogram shows their total disappearance (Fig. 1). The patient's shoulder is then freely movable in all directions and the symptoms are gone. There is no recurrence. The following case report illustrates this method:

CASE IV.—Mr. R., aged sixty, suffered from calcified subdeltoid bursitis. His physician treated him with short wave diathermy for several weeks. The treatment had no favorable effect on the calcium deposits, and the patient was referred to me. Eighteen treatments with long wave diathermy cured the condition.

CASE V.—Dr. S., a dentist, aged fifty-six, suffered from calcified subacromial bursitis of the right shoulder, and a physician gave him twenty-four short wave treatments without result. The patient was greatly worried, thinking that he might have to give up his practice. He came under my care and was cured by long wave diathermy.

Why are best results obtained by diathermy and not by short waves in calcium deposits?

In answering this question two factors should be considered: 1, thermal; 2, thermal localization or concentration. Heat is the most important thermal measure for calcium deposits. However, without its proper concentration at the seat of the disease, absorption may not take place. The thermal factor is sufficiently represented in either modality. The second factor is ideally represented in long wave diathermy, but rather poorly in short wave. The lack of proper thermal localization is greatly responsible for the less favorable results obtained by the latter. It is also possible that the mode of heat formation produced in the conductor (bone, calcium deposits), by the various short wave methods employed, may have a bearing on the results.

In the employment of the condenser field of the short waves and choosing the air spaced method, marked heating may occur in bone and calcium deposits; but the thermal energy is too much diffused, dissipated and wasted. It cannot be localized in the small area of the calcified bursitis, it spreads out much beyond the seat of the disease. While the thermal energy is powerful, but in a dissipated state, it is unable to act satisfactorily on the deposits; hence the poor results obtained by this method, as experience has shown. Heat formation is here due to the phenomenon called dielectric hysteresis, and not to the resistance of the conductor.

Of the other four short wave methods—contact, cuff, monopolar-disc, and electromagnetic cable or coil—I shall consider only the latter[5]. It offers about twenty-five percent cures (4) as mentioned above. When the coil is placed around the shoulder, maximal heating is produced in the conductive tissues, such as arteries, muscle, etc. Eddy currents are induced in them. Stagnation of the flow of heat occurs. The heat accumulates in these tissues and becomes intense enough to heat the adjacent nonconductive tissues, such as bone and calcium deposits. Thermal localization at the seat of disease is afforded by this method to a varied degree. Hence, the possibility of causing absorption of some calcium deposits (possibly of the softer ones) by the coil. The action is evidently an indirect one.

In the case of long wave diathermy, the opposite seems to take place. This current causes proportionately more heat in bone and calcium deposits than in muscle and circulating blood. This is due to the resistance offered by the former to this current. Heat accumulation reaches the desired degree when sufficient milliamperage and sufficient time for current flow are allowed. Thus, heating by long wave diathermy conforms with Joule's laws, according to which the heat produced is directly proportional to the resistance of the conductor, to the square of the current strength, and to the time during which the current flows. Of decided advantage seems to be the anteroposterior technique above described, since by this technique the tissues are in the direct and shortest path of the current, assuring desired thermal effect. Finally, by means of proper sized electrodes, the diathermic heat can be ideally localized and concentrated at the seat of the disease; hence, the best results obtained by this current in the treatment of calcium deposits; the action is a direct one.

Adhesions.—Do not torture your patient by trying to break up the shoulder adhesions by force. The diathermy (conventional, not short wave) takes care of them at the same time while effecting absorption of the calcium deposits. It is important to emphasize that short waves do not, as a rule, cause absorption of the shoulder adhesions. In some patients diathermy, too, may fail to act on them[6]. In such cases the finest

[5]The contact method may probably be of interest, though I have not seen desirable results from its employment.

[6]With the purpose of influencing the adhesions particularly, the author employs the following diathermy technic: One electrode is placed on the shoulder over the region of the affected bursa. Another electrode in the form of a semi-cuff is placed at the inner half of the arm. The upper border of this electrode falls about three inches below the lower border of the tendon of the pectoralis major. By this technique the thermal energy is directed also to the region of the axilla, influencing greatly the adhesions.

results are accomplished most painlessly by ionization with sodium chloride followed by interrupted sinusoidalization producing about twenty-two rhythmic contractions and relaxations per minute.

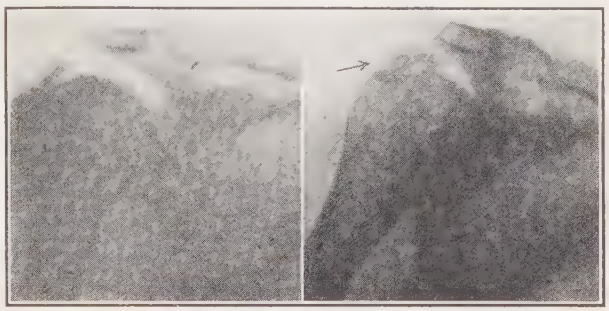
Technique.—Ionization with sodium chloride is the same as that employed in the acute stage and is described above, but instead of magnesium sulphate we use sodium chloride (10), and the solution is as warm as the patient can tolerate. After the ionization with the sodium chloride is completed, the entire arrangement is left undisturbed, except that the cords are transferred to a sine wave current giving about twenty-two contractions and relaxations per minute; time, from one minute gradually increased to eight minutes at each seance. The strength of the current conforms with the patient's comfort.

Occasionally, a chronic case may resist treatment very stubbornly. Experience, however, has shown that even the most stubborn case has responded to the methods here described, when sufficient treatments were received by the patient, as seen from the following illustrative cases:

Case VI.—Mr. G. suffered from a subacromial calcified bursitis of the left shoulder for over two years, during which period adhesions developed. He was referred to me by his physician. Twenty treatments failed to give appreciable results. The failure was no doubt due to the long standing adhesions. The patient was dissatisfied. His doctor consulted an orthopedic surgeon who examined the patient and advised hospitalization, where he would break up the adhesions of the "frozen shoulder" under anesthesia. Mr. G. refused this treatment. Accompanied by his physician, Mr. G., in whom, apparently, the previous treatments instilled some belief in my work, returned to me. I told the doctor that the condition could be cured, but because of the long standing adhesions, a good many treatments would be necessary. The patient received thirty more treatments, which resulted in a complete cure.

Case VII.—Mrs. F., aged forty-four, developed a subacromial bursitis with calcification in the left shoulder. Her family physician gave her short wave treatment,and the condition became aggravated. He then advised her to "do nothing; forget about it . . . and just keep the arm in a sling . . ." The unbearable suffering compelled the patient to visit several other physicians who also gave no relief. One of them suggested that she go to Sharon Springs. Here she received hot packs, baking, massage and baths, but with no appreciable improvement. While staying in that spa, she met a New York doctor's mother, Mrs. T., whose daughter I had cured of bursitis. Mrs. T. referred her to me. In my office, the patient gave a history of constant pain in the left shoulder and limitation of motion for the past eight months. On examination, I found the entire arm had a mottled appearance, which is usually seen in patients subjected to strong exposures of heat from conductive or convective sources. The muscles of the shoulder and arm were atrophied and motion was greatly limited because of the adhesions. X rays showed the presence of calcium deposits at the subacromial region. A few ionization treatments relieved the patient of the pain in the shoulder, and this encouraged her to continue the treatments until she was cured.

Muscular atrophy in bursitis.—This is best treated by an interrupted sine wave current, as described in the case of adhesions, omitting the ionization procedure. The treatment is by far much more effective and results are obtained much quicker than by "baking", massage, manipulations and exercises; though one may employ these methods in addition to the treatment with the sinusoidal current, the former being preceded by the latter at the same seance. The active electrode is placed over the atrophied muscle. The inactive electrode may be placed in the region of the



C D

Fig. 2.—Case X. This case illustrates the typical action of conventional diathermy on calcium deposits. Diagnosis, calcified subdeltoid bursitis.

C. Before treatment; a large amount of calcium deposits is shown in the region of the subdeltoid bursa.

D. After twelve treatments; softening of the deposits is shown.

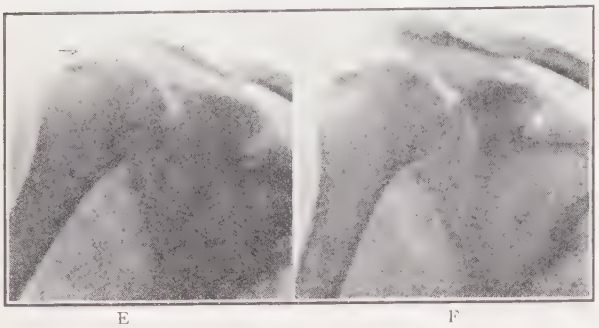
spine opposite the shoulder treated; or, the patient sits on it, on the same side as the affected shoulder. Time: Starting with one minute, this is increased by one minute at each seance until six to eight minutes have been reached. This time is kept up throughout the remainder seances. If several muscles are involved, both electrodes are of the same size and both are "active". They are placed on the affected muscles at at suitable distance from one another.

Case VIII.—Mr. H., a lawyer aged forty-six, suffered from a subdeltoid calcified bursitis of the left shoulder. He had been too busy to attend to his condition, until motion of the arm was practically lost. He consulted his physician who treated him for some time with short waves without results, and then referred him to me. In his history, the patient stated that he had developed the condition about a year ago, probably due to playing golf. Examination showed great atrophy of muscles around the shoulder joints, especially of the deltoid, and the presence of adhesions. The patient was cured of the bursitis and the atrophied muscles were restored almost to normal, resulting in proper function of the joint.

The irrigation method.—Bosworth (3) states: "It (irrigation) too is an operative procedure less certain than excision of the deposits". Concerning my experience with the irrigation method, i.e., judging from the poor results I have seen in patients treated by it, I believe it should be discarded altogether. Because the treatment, aside from being torturing, often aggravates the symptoms, as illustrated by the following case reports.

Case IX.— Mrs. D., aged forty-five, suffered from bursitis with calcification of the right shoulder. She was treated by irrigations in a clinic of one of the finest hospitals in Brooklyn, N. Y., but the condition became severely aggravated. Operation was advised

by the clinic as the only measure of relief and cure. She consulted Dr. T., and he advised her to see me before any surgery was done as I had cured his sister who suffered from the same condition and had been uselessly tortured by the irrigation method. Mr. D. was cured in my office. (Fig. 1, A, B). I wish to state that Dr. T. treated his sister, employing short wave diathermy but the treatments had no appreciable effect on the calcium deposits.



E F

FIG. 2.—E. After the next twelve treatments; disintegration of the mass is shown.

F. After the next twelve treatments; the deposits are almost entirely gone, except for a small, faint shadow, indicating the presence of a tiny remnant of the deposits. The patient felt well, but in view of this remnant she was given four more treatments, making a total of forty, and was discharged cured.

CASE X.—Mrs. G., aged forty-three, was treated by the irrigation method in the clinic of one of the most outstanding hospitals in the City of New York. The condition became severely aggravated, and operation was advised by the attending physician. She refused this advice, and she came under my care. The treatments resulted in an uneventful recovery (Fig. 2, C, D, E, F).

Operation for calcified bursitis.—In the light of our present knowledge and experience in the treatment of this condition, I believe that an operation for bursitis is inadvisable and unnecessary (except probably in rare cases). I have observed in some patients, complications set in after the operation; in many, motion was only partially restored, and in others the pain persisted for years after the operation.

CASE XI.—Mrs. M., aged forty-eight, was operated upon for calcified bursitis in the left shoulder. Eight years later she developed the same condition in the right shoulder for which she was successfully treated in my clinic. She complained that during the entire eight years she had suffered (and was still suffering) from the same pain in the operated upon shoulder which she had before the operation.

Conclusion

Calcified bursitis can be cured one hundred percent in over ninety-five percent of the cases by physical therapy, properly administerd. Thus, today, surgical intervention is not called for in this condition except probably in rare cases.

Summary

The author has described simple, effective, definite, painless, and totally safe physical therapy methods for the cure of bursitis with calcium deposits and adhesions. The methods, (which offer over ninety-five percent cures) were worked out and employed by him successfully for many years on a large number of patients in his various clinics, mainly at the Mount Sinai hospital (New York); also in private practice. They are discussed in detail and well illustrated with case reports.

The author warns against the application of heat in the acute stage of bursitis, in spite of being employed by some workers (Ellis (5), Kovacs[7], the *American Medical Association* (15, 16), and others). He shows that the application of heat in the acute stage is scientifically and practically wrong. He points out that in acute bursitis, as well as in any *itis*, there is a physiological hyperemia which is, however, one of the most potent etiological factors of pain. Heat, in any form, increases that factor and consequently aggravates the pain (except in gonococcus infection and pneumonia). He cites the cases of patients, who were on the verge of committing suicide because their unbearable pain became still more unbearable because of the employment of heat by their doctors. It is true that in some cases of acute bursitis heat may relieve the pain but in most of the cases heat does harm. Years of work, trial and error, assured him that his ionization method (employing magnesium sulphate) is a godsend in the painful stage. Finally he advocates the employment of the conventional diathermy instead of short waves for the treatment of the calcium deposits in order to obtain best results.

Comment

I urge the practitioner, who treats this condition, to employ or recommend physical therapy treatments before surgery or other painful methods are resorted to. The work should, however, be done by one who knows the principles and practice of physical therapy and possesses the necessary experience and skilfullness. It should be realized that authoritative knowledge in medicine or surgery does not justify the ignorant employment of this branch of therapy. Physical medicine as any other branch of medicine, requires experience in addition to knowledge and skill, in order to do justice to the patient who comes to us, asking for help in his suffering, and placing himself, with full confidence, into our hands. Shall we betray him?

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(*Concluded on page* 683)

[7]It may be of interest to note the same author in another work of his (14) states that heat in the acute stage is injurious. He says: "The caution should be added that acute forms of arthritis are usually aggravated by diathermy (heat) and the same applies to most cases of acute bursitis."

Editorials

Soviet Science in Wartime

The Russians are an amazing people. They have been fighting the greatest war in the history of their country; they have lost the territories which supplied them a large portion of their foodstuffs, mineral, coal and factories; millions of their soldiers have lost their lives, and yet they are sending a scientific expedition to Iran to study ways and means to combat diseases in that country. They not only have studied the various parasitic and carrier-borne diseases, but they are having something done about it.

The Iranian government has a new housing program to replace the adobe huts generally used in order to combat sand fly and tick fevers, and various other diseases. This is being done in the closest cooperation between the Russian and Iranian governments. They have placed thousands of fish in the reservoirs to devour the mosquito larvæ in order to help overcome malaria. Buildings are sprayed to reduce the incidence of sand fly fever. Tick fever is fought by impregnating the legs of beds and by the separation of buildings that house livestock from those inhabited by humans.

One of the interesting phenomena which the Russians discovered in Iran was the purification of water in order to eliminate the bacterial content by filtration through earth. The resultant water was pleasant tasting and contained no bacteria.

Studies have also been conducted on arteriosclerosis, and some of the findings are of vital importance. The Russians are truly an amazing people.

Home Front Casualties

Recent reports show that 164,000 persons have died from accidents since Pearl Harbor. These include traffic, industrial, and home accidents. Seventeen million have been injured in the same period of time from the same causes. This is a colossal casualty list; by far greater than that of the war. We speak of the horrors of war—and justly so—but we shrug our shoulders at the home front casualties which are infinitely greater than those of the battle field.

President Roosevelt has objected to the segregation of the two fronts: the home front and the battle front; and as far as we are concerned, he is right. Military men do everything they can and spend whatever is required in energy and money to prevent or lessen casualties on the battle front and still attain their objective. I wonder if we have the same attitude about traffic, industrial, and home casualties. Yes, we have many laws pertaining to traffic and the prevention of industrial hazards, and some laws are aimed to protect the home from hazards, mainly fire and structural hazards. It is estimated that almost nine billion dollars have been lost through these various casualties on the socalled home front. That is a lot of money even in these days when billions have replaced millions. This money could have financed twenty percent of the war expenditure.

It may be argued that this is no time to bring up the subject when we are shorthanded in medical men, engineers, enforcement agencies, and others who could reduce these losses in life and property, but we feel that while we strive to save empty cans and reduce the number of bobby pins that a woman can fix her hair with, we should try to save the lives, energy and property that are being destroyed through accidents. We feel that the added tension everyone is under during the war and the pressure under which industry operates have a tendency to heighten the accident toll. Traffic accidents have decreased because of the somewhat lessened speeds of travel but mainly through fewer cars being on the road, but they have not decreased to the extent that mileage and speeds have been decreased.

We believe that this is an important enough matter for federal intervention and is directly related to the war effort, and that something should be done about it soon.

Juvenile Delinquency

The Office of War Information has issued a comprehensive report on juvenile delinquency. This report is based on information gathered from a great many public and private agencies. It is admitted that one cannot form a sound evaluation of the problem from these reports because in some parts of the country a person is delinquent when he does not conform to some minor rule that has been established by greybeards with antiquated notions. In some instances a child may be considered delinquent for stealing an apple or for some minor infraction of the traffic laws, whereas the same general category of delinquency is applied to young girls who become amateur prostitutes.

We are not primarily interested in the point of view that tries to differentiate the degree of moral transgression, but we are interested in the effect of this rising delinquency on the health and welfare of the nation. The entire matter is rather complex and there are varying causative factors which are self-apparent. They are all basically economical. Others are that parents are working in factories and neglecting their homes; fathers are either in the service or in industrial occupations under heavy pressure, and the resulting lack of companionship and attention that the children get leaves them on their own to seek their own pleasures and excitement. At the same time too little has been done in providing adequate outlets for these young people.

This results in various harmful social effects. There is a breakdown in the sense of moral values; stealing is

a way of getting something for nothing, and society vainly endeavors to make the culprit pay through punishment rather than through some constructive endeavor. The child also sees the elders adopting various subterfuges, such as getting food in black markets or gasoline coupons from bootleggers. In other words, there is a definite tendency among adults, as well as adolescents, to get something for nothing, or beat the law.

Then we have the physical degradation which arises from promiscuity, the spread of venereal disease, and the distortion of values in the sphere of human relations. On the one hand, talents and skills are being directed towards getting something for nothing, or, on the other hand, getting something for sexual favors.

While all this may be attributed to basic economic factors, we feel that the result is a generalized contempt for a sound moral code which is being broken down by both juveniles and juvenile adults.

More Women Than Men in the United States

In European countries a surplus of women has been the rule for centuries, particularly during the marriageable age period. In America, however, men have predominated; in 1919 there were nearly three million more men than women in the United States.

This will now be changed. The surplus of men in the United States had started to decrease before the war, and every war helps to destroy the normal ratio between the sexes. Today we have almost one hundred males to every one hundred females, in 1930 there were still 102.5 males to one hundred females, and in 1910, 106 males to one hundred females. There is a remarkable geographical difference. When the war broke out, the Western and West Coast states had still a six percent surplus of males, while the New England and Middle Atlantic states had a marked surplus of women. Many more unmarried women live in the Eastern than in the Western states.

The male surplus in the United States was created by immigration. For centuries more men than women have immigrated to America from the various mother countries. In the early days the contrast between the Eastern and Western states was pronounced. For example, in 1850 there were only 1,009 males per thousand females in the Eastern states, while in the West the ratio was as high as 2,789 to one thousand! As soon as immigration to a country stops, a surplus of women will appear. The reason is biological: the greater weakness of the male sex, which begins at birth and even before, and more boys than girls being stillborn. Last year, at the age of five years, the average expectancy of life for white males was almost five years less than for females.

There are several ways to bring about a possible equalization of the sex ratio. Following the high number of marriages during and after wars, the number of first-born children increases, and among first-born children the rate of boys is particularly high. There are hygienic and sociological measures to equalize the effect of a surplus of women, such as the prevention of unnecessary male migration, and more effectual efforts to bring marriageable young women and men together. This however, is most important: If we succeed in keeping more newborn children alive, this better care does not concern boys and girls to the same extent; relatively more boys are kept alive. Their larger number will bring along a partial compensation for the surplus of women appearing in later life.

Maternal Mortality Declines

The campaign to reduce the hazards of maternity has been extraordinarily successful in recent years. According to a recent study made by the Metropolitan Life Insurance Company, maternal mortality in the United States has been declining continuously for more than a decade, and in this period has dropped more than two thirds. Prior to 1934 there were between six and seven maternal deaths per one thousand live births a year in this country; at present, the rate is just *under two per thousand,* despite a sharply increased birth rate and a shortage of doctors and nurses. Many forces have been at work to reduce the hazards of child-bearing since the early 1930's. The medical profession has played a major rôle in this effort; standards of obstetrical practice have been raised throughout the country.

The hospitals have taken seriously their responsibilities to ensure safe maternity. Added to these forces have been the activities of the Federal and State governments operating through maternity and child hygiene bureaus.

In the past few years the use of the sulfa drugs has proved especially potent in controlling infection in maternity. The decline in deaths due to puerperal septicemia from 2.4 per one thousand live births in 1935 to 1.2 in 1941, was due largely to the use of chemotherapy. Currently, the rate is probably less than one per one thousand.

There are still areas in the country where maternal deaths are too frequent—the South and the Southwest. The highest maternal death rates in the United States are found in these regions, reflecting in large measure the unfavorable experience among colored women. While ninety-seven percent of the white women are attended by a physician at birth, only slightly more than half the colored women receive such care.

Without the propaganda and pressure which have characterized the campaigns of the Axis countries for more babies, the birth rate in the United States has been moving upward steadily from its minimum point in 1933. Between 1933 and 1939 the number of babies

born increased only from 16.6 per one thousand population to 17.3 per one thousand. By 1942, however, it had jumped to 20.9 per one thousand. Indications are that the rate may reach about twenty-four in 1943, the level prevailing during the first world war. Because of the increase in population during the past quarter of a century, the number of babies born in 1943 will far exceed that for any previous year in the country's history, and it is the voluntary expression of a free people who have faith in the future of their country.

News Items

Clinical Society of Reconstruction Hospital.—The program for the October meeting of the Clinical Society of the Reconstruction Hospital of New York consisted of a review of summer services and an analysis of mortalities.

Aviation Medicine.—At a meeting of the Section of Historical and Cultural Medicine of the New York Academy of Medicine, held Wednesday evening, Nov. 10th, Dr. Victor Robinson read a paper on the history of aviation medicine. Lt. Commander Robert J. Hunter and Dr. Louis H. Bauer discussed the subject.

Casselberry Award.—The American Laryngological Association announces that the Casselberry Fund will finance a prize in 1944 for original investigation in the art and science of laryngology or rhinology. Theses must reach the secretary, Dr. Arthur W. Proetz, 1010 Beaumont Building, St. Louis 8, Mo., before March 1, 1944.

Rehabilitation Clinic at Lenox Hill Hospital.—A rehabilitation clinic was opened at Lenox Hill Hospital, New York, on October 7th. This clinic was established for the purpose of providing psychiatric help for men rejected at induction or discharged from the armed forces on psychiatric grounds. It is under the direction of Dr. Thomas K. Davis, with Dr. Johan H. W. van Ophuijsen, attending psychiatrist in charge.

Friday Afternoon Lectures.—The first lecture in the eighteenth series of Friday Afternoon Lectures at the New York Academy of Medicine was given on November 5th by Dr. Stuart W. Harrington, professor of surgery, Mayo Foundation Graduate School, University of Minnesota. His subject was "Diaphragmatic Hernia". The second lecture which is scheduled for November 12th, will be given by Dr. Leonard Greenburg, clinical professor of public health, Yale University School of Medicine, on "Health Hazards in War Industry".

Present Status of Pneumonia Treatment.—At a stated meeting of the New York Academy of Medicine, held Thursday evening, November 4th, the program was devoted to a consideration of the "Present Status of the Treatment of the Pneumonias". Papers were presented by Dr. Norman Plummer, Cornell University Medical College, on the treatment of lobar pneumonia, and by Dr. William S. Tillett, New York University College of Medicine, on the use of penicillin in the treatment of lobar pneumonia and pneumococcal empyema.

War Effects on Child Problems.—The Child Research Clinic of the Woods Schools holds its tenth institute in Baltimore on November 9th. Under the general title of "Psychotherapy of Exceptional Children", the impact of war on emotional disturbances in children was discussed by leaders in medicine and psychiatry from Johns Hopkins University and Hospital, as well as state and municipal leaders in educational and mental hygiene. Dr. John C. Whitehorn was chairman and among the speakers were Dr. George H. Preston, Dr. Alice Rockwell, Dr. Jacob Conn, Dr. Harry F. Latshaw, Dr. Leo Kanner, Dr. Trude Tietze, and Dr. Leslie B. Hohman.

The Salmon Lectures.—Dr. A. A. Brill will deliver the eleventh series of the Thomas William Salmon Lectures at the New York Academy of Medicine, on three successive Friday evenings, November 5th, 12th, and 19th. The general subject of these lectures is "The Psychoanalytic Contribution to Psychiatry". The first lecture will be on "The Psychiatric Scene of 1900"; the second on "The Origin and Development of Interpretive Psychiatry", and the third on "Freud's Specific Contributions to the Knowledge of the Psychoses". Dr. Brill is lecturer in psychoanalysis and abnormal psychology at New York University, and lecturer in psychoanalysis and psychosexual sciences at Columbia University.

Physiotherapy Survey Planned.—It is reported that Mr. Bernard M. Baruch is planning a survey of the field of physiotherapy and the establishment of an institution for the study and teaching of physiotherapy. The establishment of such a school was suggested to him, it is said, by Dr. Walter Belknap Jones, College of Physicians and Surgeons, Columbia University. Dr. Ray Lyman Wilbur, chancellor of Stanford University, has been appointed chairman of a committee to survey the field. Serving on this committee are Dr. W. T. Sanger, president of the Medical College of Virginia, as vice-chairman; Lieutenant Colonel Benjamin A. Strickland, Jr., Army Medical Corps; Dr. Charles F. Behrens, Navy Medical Center, Bethesda, Md.; Dr. Carl R. Comstock, Saratoga Springs N. Y.; Dr. John S. Coulter, Northwestern University Medical School; Dr. Kristin G. Hansson, Hospital for Special Surgery, New York, and Dr. Frank H. Krusen, medical director of the Mayo Clinic and School of Physical Therapy, Rochester, Minn.

Otorhinological Society Holds Annual Meeting.—The first meeting of the American Otorhinological Society for the Advancement of Plastic and Reconstructive Surgery, Inc. was held in New York on Friday, November 12th, under the presidency of Dr. Romeo Luongo, of Philadelphia. In the morning a clinic was held at the Manhattan General Hospital by Dr. Samuel Fomon and his staff, and the afternoon session was devoted to a business meeting. At the evening session, held in the Academy of Medicine, the following papers were presented: "The Rôle of Plastic Surgery in the Field of Otolaryngology", by Dr. Samuel Fomon; "Isograph Transplants in Identical Twins", by Dr. Alfred Schattner; "Physiology of the Nose", by Dr. Arthur Proetz. Discussion was opened by Dr. George M. Coates and Dr. James A. Babbitt. Dr. Morris S. Bender is vice-president; Dr. Jacob Daley is secretary, and Dr. Nathan Settel is treasurer of the society.

Meeting of Neurologists and Psychiatrists.—A combined meeting of the New York Neurological Society and the Section of Neurology and Psychiatry of the New York Academy of Medicine was held Tuesday evening, November 9th. Dr. C. P. Oberndorf, president of the Neurological Society, delivered his presidential address on "The Nature of Psychogenic Cure". The papers of the evening were: An integration of the electroencephalogram—an approach to schizophrenia through electroencephalography, by Charles S. Roberts; Physiological and clinical aspects of the electroencephalogram, by Dr. Tracy J. Putnam and Dr. Paul P. A. Hoefer. The discussion was opened by Dr. Bernard L. Pacella.

New England Society of Physical Medicine.—The first fall meeting of this society was held in Boston on October 20th, under the chairmanship of Dr. Frank B. Colloten. The topic under discussion was physical medicine in dermatology and the following papers were read: "Some of the More Common Skin Diseases, Diagnosis and Treatment", by Dr. Colloten, and "Present-Day Dermatology", by Dr. John G. Downing. The next meeting will be held on November 17th with Dr. William D. McFee as chairman. The topic will be galvanism. The officers of the society are: Dr. Arthur L. Watkins, president; Dr. Wilmot L. Marden, first vice-president; Dr. David C. Ditmore, second vice-president; Dr. William D. McFee, secretary, and Dr. Howard Moore, treasurer.

Board Examinations in Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology, Inc. will hold its next written examination and review of case histories (Part I) on Saturday, February 12, 1944, in various cities of the United States and Canada and, by special arrangements, at Army and Navy Stations. Candidates who successfully complete Part I examination proceed automatically to the Part II examination held later in the year. All applications for this year's examinations must be in the office of the secretary by November 15, 1943. The place of the Board's Part II examination in May or June 1944 has not been decided. For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh 6, Pa.

American-Soviet Scientific Congress.—A scientific congress was held in New York, November 6th, 7th, and 8th, under the auspices of the National Council of American-Soviet Friendship. On Saturday, November 6th, there was a public session on "Planning and Postwar Reconstruction in the United States and the U.S.S.R." On Sunday, November 7th, panel discussions were held on Soviet science and technology, and on public health and wartime medicine in the U.S.S.R. The latter discussion was held under the auspices of the American-Soviet Medical Society. The honorary chairmen of the congress were Dr. Walter B. Cannon, of Harvard University; Dr. Ernest O. Lawrence, of the University of California, and Dr. Gilbert N. Lewis, dean of the department of chemistry of the University of California. Dr. L. C. Dunn, executive officer of the department of zoology of Columbia University, delivered an address on "Russian Research in the Biological Sciences"; Dr. C.-E. A. Winslow, professor of public health at Yale University, spoke on "Public Health in the Soviet Union", and Dr. V. A. Lebedenko, Russian Red Cross representative in the United States, spoke on "Russian Advances in Military Medicine".

Personal.—Dr. Virgil H. Moon, professor of pathology, Jefferson Medical College, delivered the Thomas Dent Mütter Lecture of the College of Physicians of Philadelphia on December 1st. His subject was "The Dynamics of Shock as Related to Clinical Problems".

Karl F. Heiser, Ph.D., director of the psychology laboratory at Norwich State Hospital (Conn.), has been appointed research director for the state public welfare council.

Maurice R. Hillman, B.S., has received the Jessie Horton Koessler Fellowship for 1943-1944 from the Institute of Medicine of Chicago.

Lieutenant Colonel Simon Warmenhoven, M.C., U.S.A., has been awarded the Distinguished Service Cross for extraordinary heroism in action in New Guinea.

Dr. A. C. Furstenburg, dean of the Medical School of the University of Michigan, Ann Arbor, was named president-elect of the Association of American Medical Colleges at the fifty-fourth annual convention held in Cleveland.

Major General Norman T. Kirk, Surgeon General, U.S. Army, will deliver the eleventh E. Starr Judd lecture on Monday evening, December 6th. His subject will be "Surgery in War".

Dr. Karl M. Bowman, professor of psychiatry at the Medical School of the University of California, has returned to Washington for a second conference with the Surgeon General of the U.S. Army. Dr. Bowman is serving as a member of a national committee concerned with men rejected for neuropsychiatric reasons by induction boards.

Major Charles R. Yancey, M.C., U.S.A., was awarded the Silver Star Medal "for conspicuous gallantry and intrepidity in action against the enemy on Guadalcanal." Major Yancey was formerly of Nashville, Tenn.

Dr. William T. Shanahan has resigned as medical superintendent of the Craig Colony for Epileptics, Sonyea, N. Y., after thirty-two years of service. His resignation took effect on October 1st.

Dr. Russell M. Wilder has resigned as chief of the civilian food requirements branch of the Food Distribution Administration and will resume his work at the Mayo Clinic, Rochester, Minn. He will, however, continue to serve as medical adviser to the administration.

Dr. Arthur C. Bachmeyer has received the award of the American Hospital Association for meritorious service to the hospital field. Dr. Bachmeyer is director and associate dean of the division of biology of the University of Chicago Clinics. The award was made at a meeting of the Association held on September 13th.

Dr. Richard E. Shope, of the Rockefeller Institute for Medical Research, has been awarded the John Scott Medal, Certificate and Premium of $1,000 for his "discovery of the complex etiology of swine influenza".

Dr. Donald Duncan, of the University of Texas, has been appointed professor of anatomy at the Louisiana State University.

Dr. Frank H. Krusen, professor of physical medicine, Mayo Foundation, University of Minnesota, read a paper on "Wartime Physical Reconstruction" at a meeting of the New York Physical Therapy Society, held at the New York Academy of Medicine on October 15th. The paper was discussed by Major George K. Carpenter; Lieutenant Lee A. Koontz; Dr. Arthur Michele, and Dr. Charles R. Brooke.

New Journal Sheds Light on Soviet Medicine

The first number of the *American Review of Soviet Medicine,* scheduled to appear on October 25th, features papers by Dr. E. I. Smirnov, executive director of the Red Army Medical Corps, and Dr. Nikolai N. Burdenko, chief surgeon of the Red Army. Dr. Smirnov's paper reveals for the first time the prewar plans made for the care and hospitalization of the wounded, their shortcomings under actual battle conditions, and their subsequent drastic revision to meet the exigencies of mobile defense and attack. Dr. Burdenko, who has recently been granted honorary membership in the International College of Surgeons, discusses the effects of frostbite on the nervous system.

Sharply contrasting points of view on restorative surgery of peripheral nerve lesions are presented by Dr. Vladimir V. Lebedenko and Dr. N. L. Propper-Grashchenkov. Dr. Lebedenko disputes the prevailing view that three months must elapse after injury before restorative surgery may be undertaken, while Dr. Propper-Grashchenko holds that the long time-lag is essential and that defects may be remedied by nerve transplantation.

Dr. Spasokukotski's revolutionary method of feeding during operations on penetrating abdominal wounds is described in a paper by Dr. V. A. Panikov. The method consists of introducing a mixture of eggs, milk, distilled alcohol, and other foods into the abdomen during surgical intervention and is said to have produced remarkable results.

The issue also contains three survey papers: "Cancer Research in the Soviet Union," by Dr. Michael B. Shimkin, National Cancer Institute, Bethesda, Md.; "Physical Culture in the Soviet Union," by Dr. Percy M. Dawson, Duke University, and "Twenty-Five Years of Health Work in the Soviet Union," by Dr. Henry E. Sigerist, Johns Hopkins University.

A profile of Dr. Nikolai Burdenko, clinical notes taken from Soviet journals, book reviews, and society notes complete the issue.

Additional Civilian Physicians Needed by the Army and Navy

Information compiled by the Army, the Navy, and the War Manpower Commissioner's Procurement and Assignment Service and released October 20th by the Office of War Information reflects the shortage of an adequate supply of physicians taken from civilian practice "to insure even minimal care of the wounded."

Every effort has been made to hold Army and Navy requirements to an absolute minimum, and to provide for the safety of civilians through extended services such as deferments granted to commissoned interns to enable them to act as resident physicians in civilian hospitals. Moreover, it is fully realized what sacrifices the average doctor faces on entering the armed services. The Army states that relief is being provided by some insurance companies for a doctor entering the services, thus cutting professional expenses; also that special capacities may afford advances in rank. Classification of abilities, so as to use each doctor to maximum advantage, also to provide him with practice congenial to his skills, and to increase his experiences, are among the efforts made to compensate him for his sacrifice.

It is pointed out, however, that doctors who wait for their numbers to be called in the draft are mistaken in feeling sure they will be commissioned without delay. They may have to go through basic training as privates in the Army or apprentices in the Navy unless they apply for their commissions at once. Seven thousand medical doctors and eight hundred dentists are absolutely needed through December 31, 1943. The training period for commissioned medical officers is short and varied so that their abilities may be put to essential use as soon as possible.

Importance of Nutritional Education in War Plants

In an address delivered at the wartime conference of the American Public Health Association held recently in New York, Dr. George R. Cowgill, associate professor of physiological chemistry at Yale University School of Medicine, stressed the importance of nutritional education in war plant centers, pointing out that such education is one solution to the problem of industrial feeding and is an effective weapon against absenteeism. "Proper nutrition, health and sanitation," he said, "had been made even more important by our war situation, and the obvious need to see that the great army of industrial workers is able to do its work as efficiently as the soldiers in the front line who are well fed."

Fusion of Vertebræ

(*Continued from page 666*)

somewhat to the right. The x ray showed the first and second as well as the fifth and sixth cervical vertebræ to be fused. There was also a spina bifida occulta of the sixth and seventh cervical and first four thoracic vertebræ.

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Book Reviews

Cardiology

A Manual of Cardiology. By THOMAS J. DRY, M.A., M.B., Ch.B., M.S. in medicine, assistant professor of medicine, University of Minnesota (Mayo Foundation). With eighty illustrations. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 310. Price $3.00.

This is an excellent book for the medical student or for the practitioner who wishes to review the elements of cardiology. The author first discusses the normal heart and the important physical signs that accompany diseases of the heart. This is followed by a brief discussion of the several etiological forms of heart disease. The presentation is clear and to the point; the illustrative roentgen pictures and electrocardiograms are well selected and reproduced, and throughout the text there is admirable correlation of clinical phenomena of disease with their underlying physiological and pathological disturbances. The description of Libman-Sacks disease is incorrect and that of periarteritis nodosa inaccurate. With the few paragraphs that could be spared for these diseases it would have been better to omit them.

Nutritional Deficiencies

Nutritional Deficiencies. Diagnosis and Treatment. By JOHN B. YOUMANS, A.B., M.S., M.D., professor of medicine and director of postgraduate instruction, Vanderbilt University Medical School, Nashville, Tenn. Assisted by E. WHITE PATTON, M.D. With sixteen illustrations. Second edition. Philadelphia, Montreal, and London: J. B. Lippincott Company, 1943. Pp. 389. Price $5.00.

Rapid progress has greatly increased understanding of the clinical manifestations of nutritional deficiencies, but the literature is so heterogeneous that a coordinated review is a welcome addition to nutritional texts. The vitamin and mineral deficiencies occupy the major portion of this manual but some emphasis is given to protein deficiency because of the author's interest in this particular subject. The clinical aspects of each deficiency is presented in terms of history, etiology, pathogenesis, symptomatology and treatment. Established facts are clearly presented for ready application by the general practitioner. The present edition includes changes in the eye in vitamin A deficiency, vascularization of the cornea in relation to riboflavin deficiency, diagnostic methods and tabular summaries.

Ovarian Tumors

Atlas of Ovarian Tumors. By GEMMA BARZILAI, M.D., New ..York. Preface by FRED W. STEWART, M.D., pathologist, Memorial Hospital for the Treatment of Cancer and Allied Diseases. New York: Grune and Stratton, 1943. Pp. 264. Price $10.00.

It is seldom that one finds a book so thoughtfully designed for the use of the physician. In spite of the fact that the work is the result of many years of research on the part of the author in many parts of the world, and that it is a strictly scientific presentation of the various ovarian tumors, it is so arranged that within a few minutes anyone can find beautiful photographs of sections of the various pathological new growths that may be found in the ovary. In addition to the extremely valuable photographs of the microscopic sections, many of which are in color and beautifully reproduced, the text gives a running description clearly presented on the definition, terminology, frequency and age incidence, gross pathology, microscopic structure, histogenesis, clinical course, malignancy, and treatment.

The book is a looseleaf affair, arranged attractively in a convenient form. It may be opened so a flat surface is available, and anyone wishing to compare tumor slides and get a brief, crisp text can do so with extreme rapidity and be sure that the high points and essential factors are at his fingertips. The book is designed primarily for functional use and yet is extremely sound and not overburdened with controversial material. It is really what it claims to be: a diagnostic atlas and a good one.

We feel that a useful and valuable book has been made available to the medical profession.

Diagnostic Bacteriology

Methods for Diagnostic Bacteriology. By ISABELLE G. SCHAUB, A.B., instructor in bacteriology, Johns Hopkins University School of Medicine; and M. KATHLEEN FOLEY, A.B., bacteriologist, Johns Hopkins Hospital. Second edition. St. Louis: The C. V. Mosby Company, 1943. Pp. 430. Price $3.50.

Many laboratory workers and physicians will welcome the second edition of Schaub and Foley's *Methods for Diagnostic Bacteriology,* as in many instances they have become quite dependent on the book as a guide. We have always liked the textbook on account of its simplicity, directness of statement, and the general approach to the practical problems of bacteriological diagnosis.

There has been added to this second edition a section which will be found useful, i.e., the method for rapid identification of bacterial growths with colony characteristics. This method is widely used where a rapid diagnosis is of value.

One of the most important things about the book is the method of approach of the authors. They realize that little things they have learned through experiences in their own work are important. We heartily agree with the authors, and we should be grateful to them for so frankly presenting these socalled minor matters, for we believe that their use does much to facilitate practical work in many bacteriological laboratories.

Fractures

Manual of Fractures. Treatment by External Skeletal Fixation. By C. M. SHAAR, M.D., F.A.C.S., and FRANK P. KREUZ, JR., M.D., F.A.C.S. Illustrated. Philadelphia and London: W. B. Saunders Company, 1943. Pp. 300. Price $3.00.

The Surgeon General of the Navy, Ross T. McIntire, says that "external skeletal fixation" is a pertinent and vital method to the naval surgeon where men with fractured bones lying in the ship's bay are subjected to disturbances due to the motion of the ship. The fundamental principles of fracture management are reduction, retention, and restored function. The procedures commonly in use are fixation in plaster, skeletal traction, internal fixation, and external fixation. Whatever the method, the ability of the surgeon is paramount, especially when complications are present or arise during the bedfast period. Surgery at sea and in a land-based hospital are two different entities. While a plaster cast and traction by weights are excellent on land, they are almost contraindicated on a ship. If a naval battle is impending or in progress, lines and weights and pulleys

are maddening to a patient, and if a limb is weighed down by a plaster cast and the patient is obliged to go overboard, he is quite sure to be forever anchored to the briny deep. Internal fixation also has handicaps where teamwork, organization in the operating room, and asepsis are not perfected. External fixation is ideal for use at sea and in mobile hospitals which are so much in use in this war. The authors prefer the Stader reduction and fixation splint. Illustrations, many and detailed, show the component parts of this splint and the technique of its application in every detail. As elsewhere in surgery, incorrect or insufficient knowledge of anatomy, and faulty technique in the use of external splints will bring disappointing results. It ought not to be necessary to emphasize these facts, for they are axiomatic, but examination of post-war patients in civilian clinics has shown that axioms are neglected or unknown to some surgeons, making due allowance for all "emergencies." This book is a *must* for all "first-line" surgeons on land as well as on the sea, since a quick shift of patients consigned to mobile units is so often demanded.

The Skin

Practical Survey of Chemistry and Metabolism of the Skin. By Morris Markowitz, M.D., associate in dermatology and syphilology, Graduate School of Medicine, University of Pennsylvania. Philadelphia: The Blakiston Company, 1942. Pp. 196. Price $3.50.

This small book is packed with the information every one interested in the skin had hoped to compile some day but never did! The author has roamed far and wide—the lists of references are long if not exhaustive. He has not been too orthodox in choosing what he included. The reference to a difference between gentile and Jewish blood, on page 89, is a case in point.

Some sixty pages are given to the section on chemistry; another forty pages to the section on hematology; still another forty pages are devoted to blood chemistry, and a final forty pages to vitamins in dermatoses.

The publishers have done their usual good job with print, paper and binding.

Allergy

Primer of Allergy. By Warren T. Vaughan, M.S., M.D., Richmond, Va. With illustrations by John P. Tillery. Second edition. St. Louis, Mo.: The C. V. Mosby Company, 1943. Pp. 176. Price $1.75.

We have seen this book before. The author must have had a lot of fun writing it. It is written for the layman and with no holds barred. The whole question of allergy is handled midway between broad humor to make the text more palatable and basically from a scientific point of view. Perhaps this is the best way to approach medicine.

Men like Dr. Rabelais wrote books which abounded with homely humor on the one hand, and scientific treatises on the other. In this booklet we have a combination of both and, no doubt, a person with allergy of any type will feel a lot better if he can laugh at himself and his condition, and if he can have a better understanding of the underlying mechanisms which bring about his distressing symptoms, so much the better. Of course, there is always some danger that the patient with allergy will think he knows more than the physicians to whom he may go for aid. We are sure that sufferers from strawberries, rabbits, and wholewheat bread will get much comfort from this little brochure.

Critique

Antivivisection The *Quarterly Journal* of the Research Defense Society, founded by Stephen Page, in 1908, carried on "the fight against disease" and antivivisection for England. This journal was apparently maintained largely to permit humanitarian Stephen Coleridge to decry pain inflicted upon innocent dogs for human purposes in controversy with Lord Knutsford, Lord Dawson, and any others who desired to argue with Stephen Coleridge. Coleridge would rather have died of malignant cancer than to have had a single demure cockroach spend an unhappy quarter of an hour for his relief. There were many who were heartily in favor of Coleridge carrying out his threat to pass on. Disagreement entered in where he insisted that laws should be enforced to prevent others from giving successful combat to disease via vivisection. He would have compelled the innocent bystanders to die with him. The noble lords portentously argued with him, but never got anywhere because their premises differed entirely from his, hence the logical structures they reared upon them also differed absolutely. This resulted in the contestants regarding one another mutually as evasionists and that ended the matter. Nevertheless work originally undertaken for the relief of animal ailments in which experimental animals were used has often resulted in tremendous benefit to human beings. This has been demonstrated among other places in the Bureau of Animal Industry, the chief of which, Dr. John R. Mohler, retired July 31, 1943, after serving as its head since 1917. Marion Dorset and Maurice Hall, two of his former colleagues, did notable research there.

Chichester's Pills In February 1929, after a seven-year court battle, Chichester's pills, a product marketed by the Chichester Chemical Co., of Philadelphia, lost out. The government proved the claims made to be false and fraudulent. It was brought out that claims for "relief of ladies," printed in its little red book, were just not so. The socalled "diseases of women" it described were in reality just the symptoms of about seventy diseases, among them cancer, tuberculosis, typhoid, and scarlet fever. Chichester's pills contained aloes, sulphate of iron, cotton root bark and extract of hellebore, and 460,000 boxes were sold annually. Since then ladies have had very little relief except what could be given by the WPA, the standard purgatives, and lying abed.

Income and Health People have long been getting sick because they lacked sufficient income to afford to stay well. Seven South Carolina mill villages were studied in 1916, (*U. S. Public Health Reports,* November 1918). The sickness rate rose steadily as incomes declined, finally attaining 70.1 per 1,000 at the lowest income level. A study of New York City's clothing industry in 1914 showed the most disease in the lowest paid groups (*U. S.* Public Health Reports, May 1916). The poorest people, in some peculiar way, still get sick oftenest.

The Critic

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NOVEMBER 1943

Medicolegal Notes

Failure to Remove or Loosen Tight Bandage on Fractured Arm; Issue of Negligence for Jury

A nine year old boy broke his right arm above the elbow. It was a supracondylar fracture. He was promptly taken to a hospital, where the arm was set by two doctors. It was taped with the right hand placed against the right shoulder, and the boy was sent home with directions for his care and treatment. He was taken back to the doctor, more tape was put on the arm and ice pack directed for three days. This was done. He was then returned to the doctor's office, when an x ray was taken. No tape was removed, but more was added. The mother was told the boy had a slight contracture. For three or four weeks more the boy was taken to the doctor's office about twice a week. More tape was added nearly every week.

About five weeks after the fracture one of the doctors for the first time removed the tape that held the arm in acute flexion. When the tape was taken off much of the arm and flesh came off with the bandage. —The doctor put no dressing on the arm at this time.

On January 13, 1938, nearly four months after the accident the boy was taken to a hospital in Iowa City where an operation was performed. He was in the hospital for six months. He returned there later nine more times for periods of four months, three months, four weeks and shorter periods. Three serious operations were performed. For two years he wore a brace except when his arm was in a cast or being operated on. Suit was brought against the two doctors, partners, for malpractice. At the close of plaintiff's evidence the defendants were granted a directed verdict on the ground that the evidence was insufficient to prove negligence or proximate cause. The plaintiff appealed.

The Iowa Supreme Court Bartholomew vs. Butts, 5 N. W. 2d 7, reversed the verdict and remanded the case for a new trial, on the ground that it should have been submitted to the jury. In doing so the appellate court said that it had set out in its opinion only testimony favorable to the plaintiff. It expressed no opinion on the weight of the evidence and suggested no conclusions to be drawn therefrom, these being the functions of the jury.

The plaintiff's theory was that the defendant's failure to remove or loosen the bandage on his arm was negligence, which was the proximate cause of deformity of the boy's arm, a Volkmann's contracture. It was held that there was substantial evidence to support this theory and that the case should have been submitted to the jury. Aside from plaintiff's theory of causation, the two principal possible causes suggested were the original fracture and slipping of the bone. Both possibilities were held negatived sufficiently to make the issue of causation for the jury.

Privileged Communications Statute as Affecting Depositions in Other States

In New Hampshire a physician may be required to testify fully in relation to his examination and treatment of his patient. No privilege exists such as is afforded in the New York courts by section 352, Civil Practice Act. Action was brought in the New York courts to recover double indemnity benefits provided in a life policy, by the widow of the insured, who was a resident of New Hampshire. The contract of insurance was also made in New Hampshire.

The defendant sought to prove by the testimony of New Hampshire physicians who were claimed to have examined or treated the insured that he died of natural causes and did not suffer accidental death and that the plaintiff was, therefore, not entitled to recover double indemnity provided in the policy in the event of accidental death.

The City Court of New York, New York County, holds that the testimony of these physicians as to matters privileged under the laws of New York may not be taken by deposition in New Hampshire for use at the trial in New York. The public policy of New York State does not permit the use of such evidence. And its admissibility is to be determined by the law of the forum. But if, by a proper affidavit, the defendant were to show the specific facts or matters, not privileged under section 352, concerning which it sought to take the depositions, the defendant was given permission, at any time, to take such depositions. What was lacking in the papers then before the court was proof that the depositions of these physicians, upon matters not privileged, was necessary or material, or of any use in the trial. Wexler v. Metropolitan Life, 38 N. Y. S. 2d 889.

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TRUTH OF THE MATTER

Don't Be a Water Sot!

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Experts on health, diet, and medicine have been going around so long insisting that normal people should drink six or eight glasses of water a day that you are likely to catch yourself believing them if you don't exercise some care. It was really refreshing when a year or so ago a physician told a gathering of his fellows that water drinking could easily be fatal, much less merely harmful, and issued a solemn warning.

When you stop to think how difficult it is to keep drinking water potable and germ-free, and how impossible it is for germs to live in highballs and cocktails you begin to wonder about what the health experts keep telling you. It is possible to become a water toper, a true hydrogen monoxide fiend. You can't even electrocute a criminal, can you, unless the electrodes make contact with him through a wet sponge?

However, even in Pliny's day, physicians politely agreed to differ about the merits of aqueous piety. Rain water was said by them to be rather too light for ordinary use; they advised the drinking of snow-water—though when we were young, people said that gave you sore throat. Ice water was an ancient delicacy. Water from the earth was held to be "heavy", by the experts with whom Pliny had to contend. But Pliny did ask how the sense and feeling of the stomach could determine such things!

Nero is said to have boiled his drinking water first, after which he put the water container and contents in snow. He did that to drive the "evil" out of the water. He evidently knew it was a pretty lethal liquid. Spanish peasants in very recent times always shook water containers vigorously at night before they imbibed. That likewise was to drive out evil spirits which would otherwise think nothing of killing the drinker almost forthwith.

In Blackwood's *Edinburgh Magazine* for January 1828 there is a curious review of a health book which was entitled "Sure Methods of Improving Health and Prolonging Life", and which was written by one who signed himself "A physician". The reviewer was a captious wag. In time the book's author got around to water drinking which he commended highly.

That infuriated the reviewer. He deplored this vile practice. He also wrote: "We never remember seeing any man indulge in water." Of course it must be remembered that the writer was in Scotland. But he went on at a great rate saying, "The best authenticated water-drinkers are very apocryphal."

He even declined to quote the physician-author's panegyric on water drinking because it might "corrupt the taste and feeling of our readers . . . We earnestly beg our subscribers to remember, that more people get their death by drinking cold water than any other fluid." He explained these deaths as usually caused by intemperate water drinking after hard labor; he said the people who did the drinking were not "water-sots"!

That is something to think about though. A celebrated American expatriate, who recently died in Paris at a great age, attributed his life-long good health

(*Continued on page 690*)

On the Job—OUR FEMININE "MANPOWER"

OFFICIALS of the War Manpower Commission assert that women today can capably "take over" any man's job, *provided it is within their physical powers.*

Menstrual aberrations, however, cause frequent absenteeism and loss of efficiency. For the symptomatic treatment of functional conditions, physicians find Ergoapiol (Smith) a highly efficient emmenagogue, in which the action of all the alkaloids of ergot (prepared by hydro-alcoholic extraction) is synergetically enhanced by the presence of apiol, oil of savin, and aloin.

Its sustained tonic action on the uterus provides welcome relief in many cases—by helping to induce local hyperemia and to stimulate smooth, rhythmic uterine contractions, and by serving as a potent hemostatic agent to control excessive bleeding.

May we send you a copy of the booklet "The Symptomatic Treatment of Menstrual Irregularities."

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INDICATIONS

Amenorrhea, dysmenorrhea, menorrhagia, metrorrhagia, in obstetrics.

Dosage: 1-2 cap. 3-4 times daily.

Supplied: In ethical packages of 20 cap.

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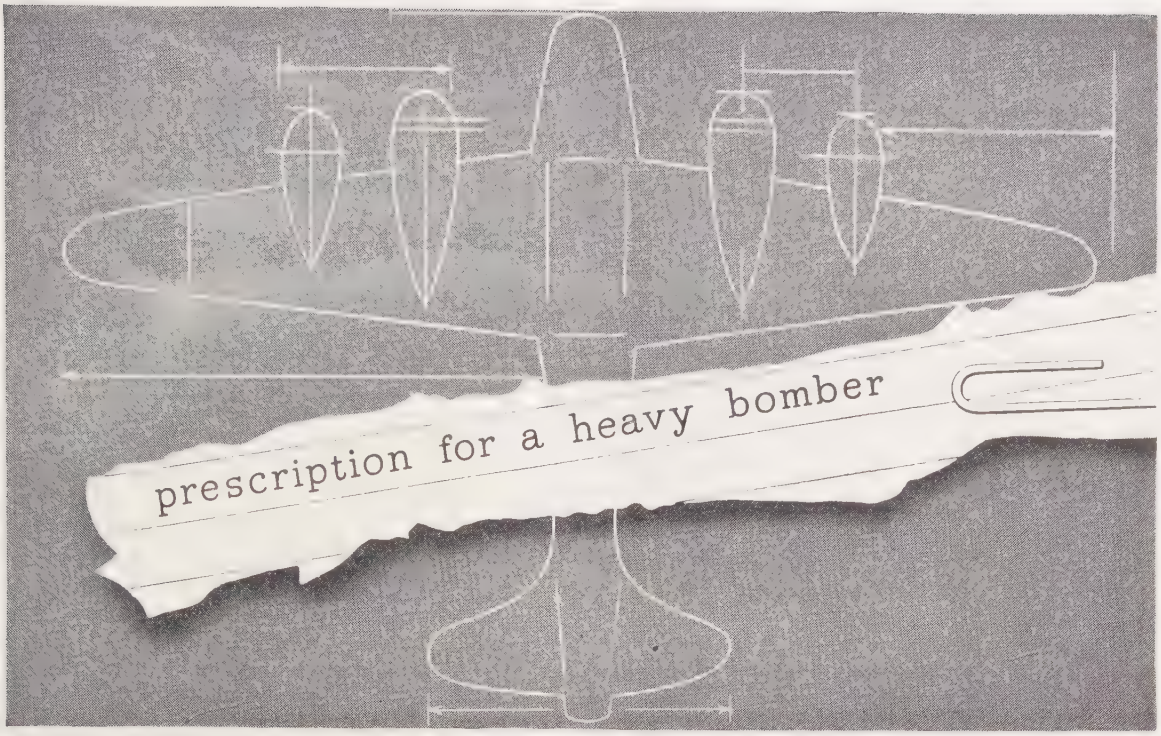
THE PREFERRED UTERINE TONIC

Ethical protective mark, M. H. S., visible only when capsule is cut in half at seam.



WHEN you write a prescription for Oravax, you are helping build a bomber, a cruiser, a tank—by salvaging man-hours for this important work.

No other disease takes as great a yearly toll of working time as does the common cold.

Controlled clinical tests, published in current medical literature, have demonstrated the value of oral vaccination with Oravax in reducing the number, severity and duration of colds. Oravax is inexpensive, painless, causes no severe reactions.

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ORAL CATARRHAL VACCINE TABLETS

Protection with Oravax should begin early and continue throughout the season when colds are most prevalent. Dosage is simple: one tablet daily for 7 days, then one tablet twice weekly throughout the "colds" season.

Available at prescription pharmacies in bottles of 20, 50 and 100 tablets.

Trade Mark "Oravax" Reg. U S. Pat. Off.

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to his habit of drinking champagne for breakfast. This he did for sixty years. It seems rather a shame that our bodies are so full of water, but water constitutes more than seventy percent of this skeletonized protoplasm we lug around with us. If we weigh a hundred and fifty pounds only about forty-five is solid matter.

The rest is water or, Lord help us, ice! For in 1932 Dr. Neda Marinesco of the Paris Institute of Physico-Chemical Biology informed all who would listen that the human body was full of ice. Of course it is a peculiar kind of ice, and there are half a dozen kinds anyway. Dr. P. W. Bridgman of Harvard has studied all six and he found one that existed at a temperature of 176° Fahrenheit, if the pressure was kept at a hundred thousand pounds per square inch.

Dr. Marinesco asks us to believe that such enormous pressures exist in the living tissues of our bodies because of the great attraction our bodily jellies or colloids for water. This attraction compresses the water and changes it into ice No. 6. That explains why it is almost impossible to squeeze a drop of water out of a living muscle composed largely of water.

In health our bodily water is not mere ballast either —a bodily reserve that accumulates like fat. It is the medium in which chemical changes take place—metabolism—the process of building up and tearing down tissue cells. But that does not mean we have to swill water to keep our organism's chemical laboratory going.

Many of the foods we eat are nine-tenths water Hence our water intake is always unavoidably high without taking the poison direct in undiluted form. Coffee, tea, milk, soup, chocolate, even whisky—the last an otherwise unobjectionable beverage—all contain water.

Speaking from the viewpoint of sanitary engineering we are complicated water mains, of a sort. Our bodies continually lose water by way of the skin, lungs, bowels, and kidneys. This must be replaced somehow, the relative output varying in different persons. Any undue water intake is first compensated by an increased output.

Augmented bodily heat, as in fever, calls for water to help dissipate it. Healthy adults lose about an ounce of water hourly to the atmosphere in the form of "insensible perspiration", a sort of subconscious sweating you do not have to work for. There goes a pint and a half of water daily.

During a ride in the desert sun of Southern California it is possible for an individual of average weight to lose over two and one-half gallons of water. The average-sized man is lugging around at least a hundred pounds of water continuously.

Obviously we need some sort of water intake to maintain the balance but we do not need to get careless and drink a quart or two of the dubious stuff a day, while at repose, and twice as much if working hard. For, as we observed, the very solid foods we eat contribute to the body's water supply. Even sugar produces half its weight of water and the solids in our diet provide us with at least a quart of water daily.

The average individual therefore derives about half of his necessary water supply from the solid food he eats. He can easily get the rest from coffee and cocktails without having to drink pure water at all. Nat-

(*Continued on page 696*)

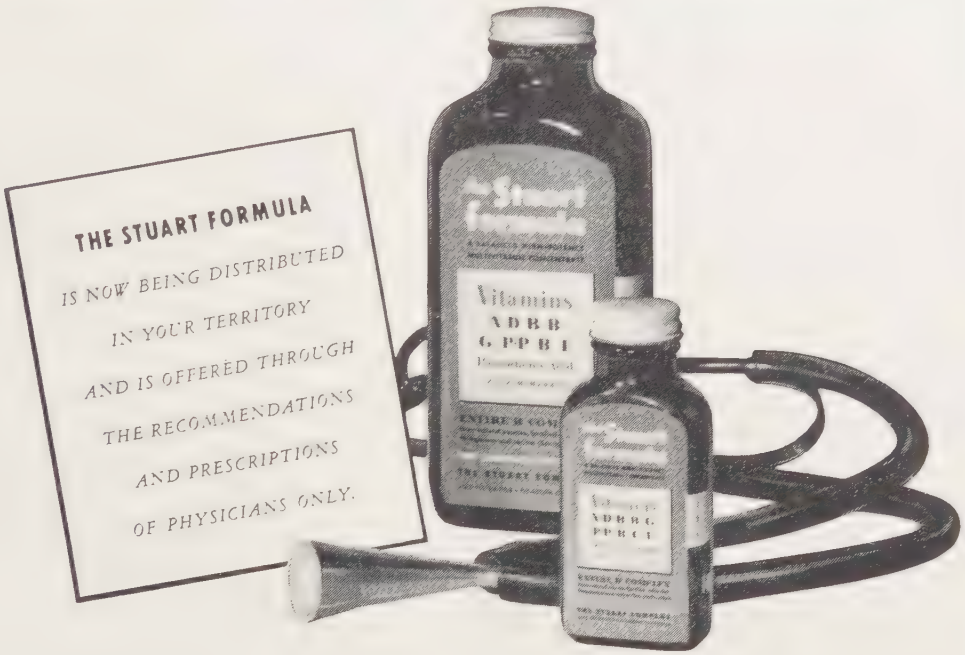
PASADYNE

affords decided relief for headaches of nervous origin occurring in those of highly neurotic tendency, or subject to hysteria or epilepsy.

PASADYNE ACTS PROMPTLY AND WITHOUT UNDESIRABLE BY-EFFECTS.

JOHN B. DANIEL, Inc. Atlanta, Georgia

The Stuart Formula is designed especially for PHYSICIANS



The Stuart Formula, a complete high-potency multivitamin concentrate, meets or exceeds all vitamin requirements as recommended by the National Research Council.

The Stuart Formula is available in two convenient forms, liquid and tablet, and meets the individual tastes and requirements of *all* patients.

The Stuart Formula is complete. It contains natural B complex factors and minerals.

The Stuart Formula is sold at a sensible price that *all* patients can afford.

Compare: BALANCE, POTENCY *and* COST *with any other multivitamin product.*

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(Elixir of diethylmalonylurea—Schieffelin)

WHEN THE PATIENT NEEDS Sleep

Nothing is more aggravating to nervous patients than long waiting periods before sleep makes its appearance.

Neuronidia promptly and gently leads the insomnia patient to the land of restful slumber and assures a refreshed awakening the following morning.

Hypnotic dose: One dessertspoonful upon retiring.

Sedative dose: One teaspoonful two or three times daily.

•

Literature and sample on request.

Schieffelin & Co.

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Pharmaceutical and Research Laboratories

Medical and Surgical Relief Committee Donations

Dr. Joseph P. Hoguet, medical director of the Committee, reports that the Medical and Surgical Relief Committee of America has donated to the War Shipping Administration four thousand capsules of sedatives requested for use in recuperation centers in England and North Africa. Many American merchant seamen resting in convalescence posts abroad have manned ships loaded with explosives, many have travelled through submarine infested waters, and others are survivors of torpedoed merchant vessels. These men are tense from the memory of grim ocean-crossings, and from the shock of combat or shipwreck, and doses of mild sedatives are required to relax strained nerves.

Another donation of the Medical and Surgical Relief Committee consists of sixteen large emergency field sets. The field set, which was specially designed by the Committee's medical board, consists of two valise-sized cases, equipped with supplies for any emergency. The sets are portable, and can be carried directly to where the casualties are.

Conducted for over three years, the Medical and Surgical Relief Committee is dedicated to supplying medical and surgical aid to the armed and civilian forces of the United Nations. To date, over $572,000 of drugs, instruments, serums, vitamins and other equipment have been distributed to maritime and military units of America and her Allies, to needy hospitals, war-zone welfare agencies and to civilian defense posts throughout the free world.

HARROWER ENDOCRINES

THE HARROWER LABORATORY at Your Service GLENDALE CALIFORNIA

ENDOTHYRIN

Thyroid extract (thyroglobulin)

Dependable potency (iodine 0.62%)

Lower toxicity (better tolerated--less heart-stimulating effects)

Samples and literature on request

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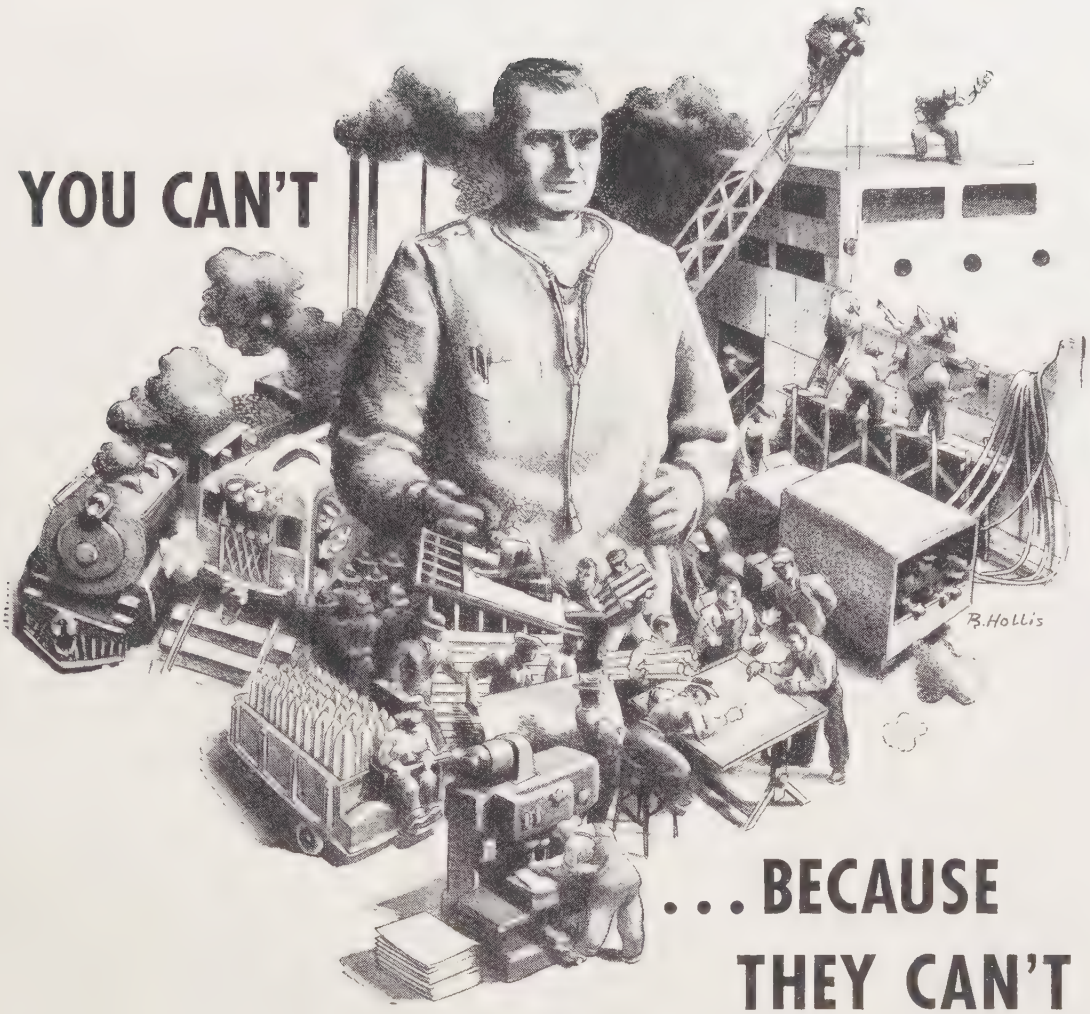

. . . BECAUSE THEY CAN'T

Often, today, the physician can't get his head-cold patients to go to bed—because they can't, or feel they can't, absent themselves from essential war work. But he *can* do much to help these patients. He can give them marked comfort and relief by prescribing BENZEDRINE INHALER.

Benzedrine Inhaler is so outstandingly convenient that the physician may overlook the fact that it is, first and foremost, a highly effective therapeutic agent.

BENZEDRINE INHALER

A VOLATILE VASOCONSTRICTOR

In a Modern Plastic Tube

Each tube is packed with racemic amphetamine, 250 mg.; oil of lavender, 75 mg.; menthol, 12.5 mg.
Benzedrine is S.K.F.'s trademark, Reg. U. S. Pat. Off.

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STORM SIGNALS!

IN the presence of the warning signs of renal disease—especially albuminuria, edema, and oliguria—more and more physicians are relying on the oral administration of NEPHRITIN.

Prepared from fresh whole kidney substance by special process, NEPHRITIN contains substances which are utilizable in supplementing the functional activity of the gland. It has been found to augment urinary flow, increase the quantity of urea and total solids, and reduce edema.

Recognition has been accorded NEPHRITIN by thousands of physicians who have used it successfully in the treatment of oliguria, edema, uremia and albuminuria since its introduction in 1906. No contraindications restrict its administration. It is free from all toxic substances and contains no preservatives.

Indications and Dosage:
So encouraging is the clinical evidence that NEPHRITIN deserves serious consideration in every case involving renal pathology. In most cases large doses of NEPHRITIN are essential—3 tablets four to six times daily. In severe cases, some physicians employ from 30 to 80 tablets daily. Available in bottles of 80, 500 and 1000 tablets.

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Pioneers in Endocrine Therapy

NEPHRITIN

Longevity and Sex

The termination of life is, in the majority of cases, accidental or consequent upon the wearing out of some vital organ. In the human species, nature endowed the male with a handicap in numbers to compensate for his inferior adaptation to more of the conditions of existence, says *Health News* (Sept. 13, 1943) in a study of age and cause differences in the mortality of males and females in New York State. The excess of male births, which in New York State has ranged from four and a half to six and a half percent a year, is eventually balanced by the higher mortality at all ages. The death rates per one thousand population in New York State in 1931-1941 for males of all ages was 12.1 and for females 10.0; that is, twenty-one percent of male over female mortality. This disparity was greatest in adolescence and in middle life and least in old age. When individual causes of death were considered, important differences were found in the degree to which each sex succumbs to disease, accidents, and the degenerative processes. The total number of deaths among males exceeded those among females by 38,255. Diseases of the coronary arteries accounted for 15,807 deaths, accidents for 8,691, and tuberculosis for 5,530. Thus, these three causes represented almost four-fifths of the excess of male mortality.

The mortality of tuberculosis was higher among males at all ages except at ten to twenty-four years. The death rates from accidents, other than automobile or drowning, were decidedly higher among males with the exception of the oldest group, seventy-five years and over, where the rate among females exceeded that among males by fifty-seven percent. By far the greatest proportion of this difference represented accidents in the home.

In Whooping Cough

ELIXIR BROMAURATE

Cuts short the period of the illness, relieves the distressing, spasmodic cough and gives the child rest and sleep.

Also valuable in other PERSISTENT COUGHS and in BRONCHITIS and BRONCHIAL ASTHMA.

In four-ounce original bottles. A teaspoonful every 3 to 4 hours.

REFERENCES: Clinical Observations on The Treatment of Pertussis with Gold Tribromide (Elixir Bromaurate). Medical Clinics of North America, Sept., 1938.

Gold Tribromide (Elixir Bromaurate) in the Treatment of Pertussis. Report of 450 Cases. Medical Record, August, 1939.

GOLD PHARMACAL CO., New York

How safe and effective is TAMPAX?

Intensive 5-year study of 2340 cases answers important questions on use of Tampax Menstrual Tampons

THE results of a comprehensive investigation* into the safety and efficacy of Tampax menstrual Tampons provide valuable data for the physician's consideration. In this project, studies of bacterial flora and hydrogen ion concentration, vaginal mucosal biopsies and glycogen determinations were undertaken, in addition to gross examinations . . . to answer the following questions:

Do tampons cause cancer, erosion, or vaginitis?

"No production of irritation or discharge, vaginitis or cervicitis was found"—in one study group of 218 women employing tampons regularly for one year or over.

Do tampons block the flow?

"The answer is no"—"Tampons actually acted as a wick to draw away the blood from the cervix."

Do tampons irritate the delicate vaginal tissue?

"The answer is no"—On the contrary, "on observing over 500 private patients using vaginal tampons during menstruation, in not one have I observed any harm."

Should tampons be worn only at the start and end of menstruation?

"The answer is no. In the 110 young nurses (another study group), 95 per cent used tampons with satisfaction all through menstruation. Only 5 per cent could not use tampons in the middle of menstruation and in these cases the flow was excessive."

Do tampons overcome the problem of menstrual odor?

"The answer is yes. This has definitely been shown by us and other investigators."

Are tampons comfortable and do they help the psychological attitude toward menstruation?

"The answer is yes. The patient does not even know that a tampon is present in the vagina if it is inserted sufficiently deep . . . A large number of patients have stated, without being asked, that premenstrual and menstrual tension has disappeared."

* Karnaky, K. J.: West. Jnl. Surg. Obstet. and Gyn., Vol. 51, p. 150, April 1943; condensed in Cur. Med. Dig., July 1943, p. 43.

TAMPAX INCORPORATED, PALMER, MASS.

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(Continued from page 690)

urally whenever the solid intake of food is reduced, as in certain illnesses, the liquid intake, preferably of fruit juices, must be augmented. But the healthy body has remarkable ability to maintain the constancy of its fluid matrix. When, as during exercises, metabolic waste products are thrown helter-skelter into the blood in unusual quantities, the heart, lung, skin, and kidneys all speed up and the volume of the blood remains constant.

When the salivary glands of dogs are removed they drink no more water than usual unless put in rooms warm enough to cause panting. That raises their water output; then they drink more than usual. They generally consume their water immediately after meals; if denied it then and offered it later their intake is much reduced.

Human beings also have postprandial thirst. It is doubtless due to the drain we make on our tissues when we secrete gastric juice copiously. But the need is only temporary. We do not have to drink a lot of water after meals. Reabsorption will take place from the digestive tract later.

Medical authorities long and boisterously condemned copious water drinking with meals. They said it would dilute the digestive juices and cool the stomach so as to seriously interfere with digestion. Physiologists now hold that God protects water topers as he does the other kind; water taken at meals is permitted to sluice right through the stomach and rarely stops long enough to do harm. The stomach recognizes a dangerous poison at sight and gets rid of it!

Suppose we drink water to some excess. Our water turnover may then rise from two up to four gallons per day. In two or three hours the body will get rid of the excess. The insensible loss of water also increases and we wind up containing less moisture than before. You do need more water, however, if after drinking much you eliminate little, but avoid intemperance.

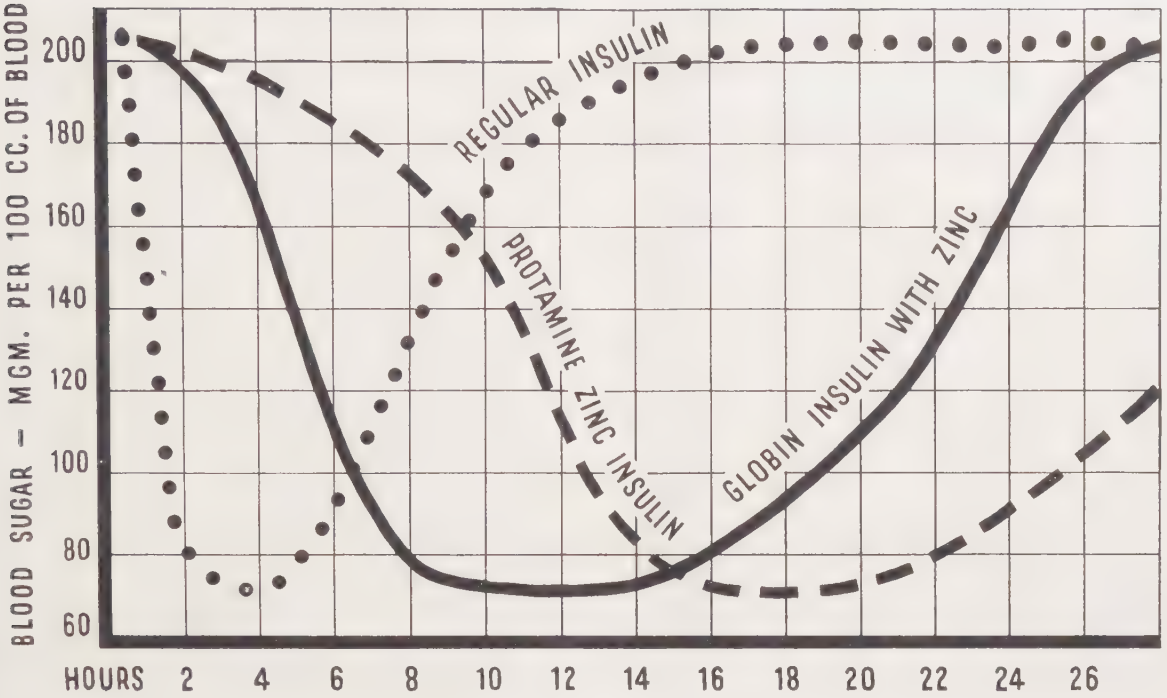
For water *per se* is a poison to our blood and tissues. The addition of a little salt takes the curse off. But when water is added to fresh blood the blood becomes "laked," that is the red corpuscles simply swell up and burst. That occurs because the salt content of the liquid inside the corpuscles is greater than that of the liquid outside. No matter; it is a form of poisoning.

The completely intemperate drinking of water brings on a state of intoxication that makes delirium tremens look like a fit of coughing. After certain types of surgical operations water is sometimes administered by

(Continued on page 698)

EFFECTIVE THERAPY
IN
Otitis Media
Requires Analgesia-Bacteriostasis, and
Dehydration of the Tissues.
Auralgan
The Doho Chemical Corp., New York-Montreal-London

A New Advance in Insulin Therapy



The above diagram shows the effects of comparable doses of various insulins on the blood sugar level of a *fasting* diabetic patient. Note the *intermediate type of action* of globin insulin as compared with regular insulin and protamine zinc insulin.

★ 'Wellcome' brand Globin Insulin with Zinc is a new type of insulin, a clear solution with both *prompt and prolonged* action, developed in the Wellcome Research Laboratories, Tuckahoe, N. Y.

★ One subcutaneous injection daily has been found to control satisfactorily most moderately severe and many severe cases of diabetes.

★ The action of 'Wellcome' Globin Insulin with Zinc conforms to physiologic needs. Its onset of action usually occurs within two hours after injection. When injected in the morning, its strongest action occurs during the day when insulin is most needed; during the night (16 to 24 hours after injection) the action wanes and hence nocturnal insulin reactions are rarely encountered.

★ 'Wellcome' Globin Insulin with Zinc has the advantage of being a *clear solution,* not a suspension.

★ Globin has not been found to be allergenic and consequently 'Wellcome' Globin Insulin with Zinc, in its freedom from producing skin reactions, is comparable to regular insulin.

TRADE MARK **WELLCOME** BRAND

GLOBIN INSULIN

WITH ZINC

Reg. U. S. Pat. Off. 2,161,198

Vials of 10 cc. 80 units in 1 cc.

Literature on request

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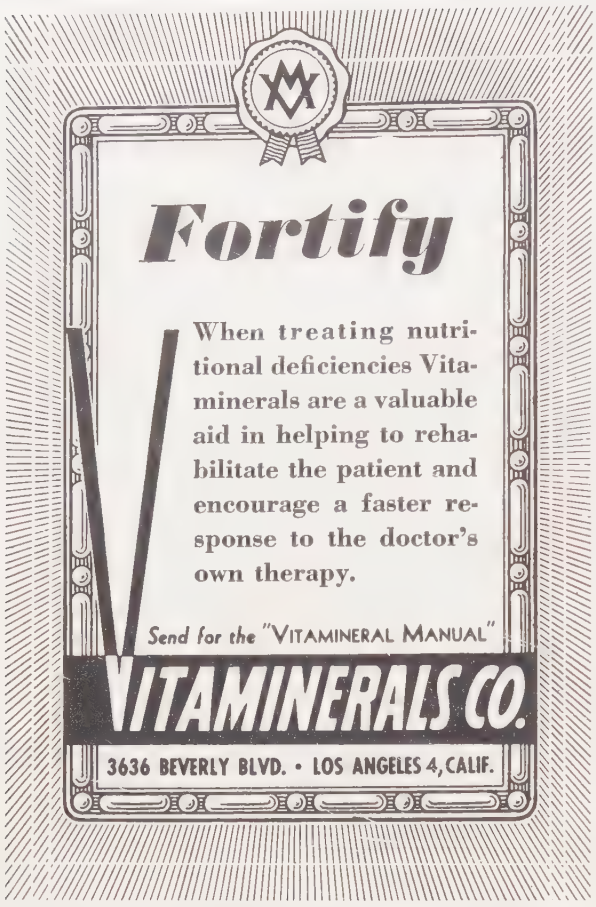
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socalled proctolysis. One woman who was given a little less than two quarts in about thirty-six hours went into convulsions and ultimately died a horrible death. Other such cases of fatal water intoxication appear in medical records.

Sufferers from diabetes insipidus naturally drink huge quantities of water and run the danger of becoming intoxicated. They sometimes take as much as two or two and half gallons a day and, especially if they are also treated with pituitary preparations, may become very ill. The basic cause of death is an upset salt balance, i.e., the body no longer contains enough salt to act as an antidote to poisonous water.

Various investigators have carried on animal experiments to produce water intoxication using rats, dogs, cats, and guinea pigs. The symptoms produced included vomiting, salivation, convulsions, stupor, general weakness and flaccidity, abject helplessness, and death—unless common table salt was administered as an antidote. The convulsions are of extreme violence.

The trouble in the main is that the blood gets too dilute when the water intake is excessive. Intracranial pressure also develops—the brains seem to get drowned out. It was long supposed that if pure water were introduced into the veins of living animals this toxic effect would disappear.

In the original experiments only one-thirtieth of an ounce of water was introduced into a rabbit's veins, so positive was the investigator that something dreadful would happen. But it was later found that as much as two ounces of water could be added to the rabbit's six or seven ounces of blood without causing it harm. The rabbit proved a pretty resistant brute.

Later still scientists in the United States Bureau of Animal Industry also discovered that a horse could take four or five gallons of water into its blood without putting up a distress signal. A horse weighing a thousand pounds carries around about a hundred and fifty pounds of blood, if that is any consolation to anyone.

Besides, the water is more lethal if imbibed, apparently, than if put into the living blood streams which shows remarkable power to resist toxicity. A fatigued animal can very easily drink too much water, upset the salt content of its blood, and go into colic or cramps and even die. So can a human being. Ordinarily the bodily organs would be able to restore and maintain balances, but not in a bad fatigue state. It is well-known that overfatigued workers get violent cramps from drinking pure water, which is why they are given salt tablets to take.

The important thing to remember appears to be that water, like alcohol, is an active bodily poison. It must be used with care. Animals or human beings ill with diseases that cause dehydration can, naturally, drink a great deal of it without harm. Water can even be pumped into animals until their bodies distend, still without harm. But hard-worked animals and human beings must be careful.

It is quite easy to prevent or to relieve a relative depletion of the blood salt content by taking common salt in tablet form or otherwise. It is also quite easy to upset this salt and water balance by intemperate indulgence in hydrogen monoxide and to bring on symptoms of mild water intoxication.

Don't be a water-sot. Temperance in all things is best. Always use moderation when dealing with a deadly poison.

Granite Gables

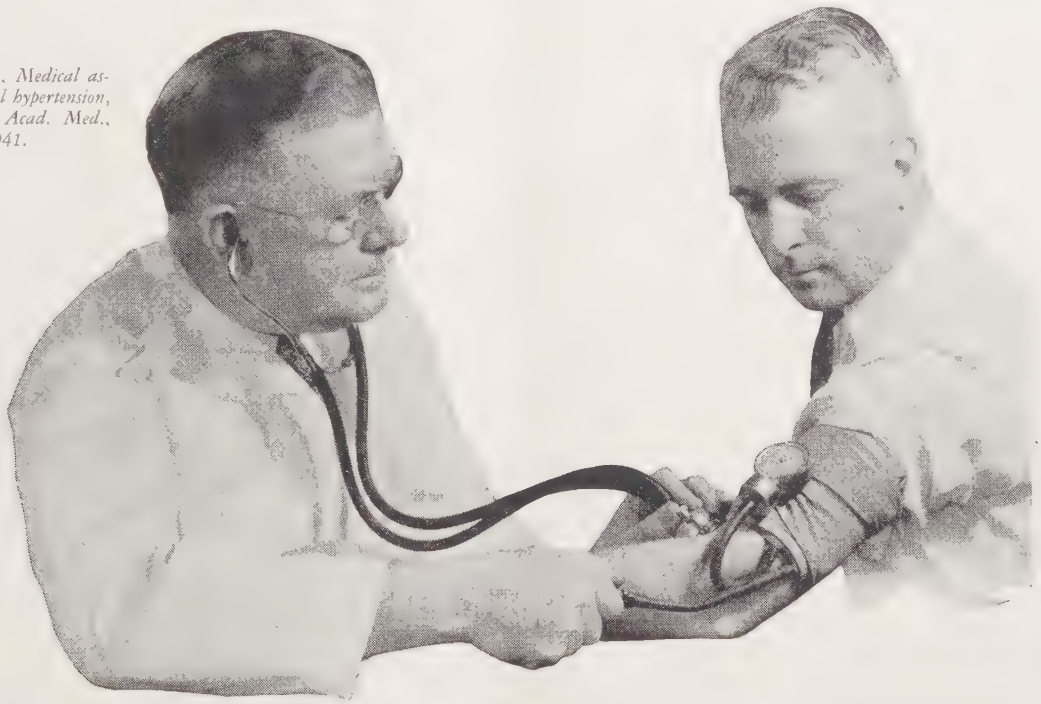
THE IMPORTANCE OF HYPERTENSION

"The importance of hypertension as a problem of health needs emphasis. High blood pressure is both a common disease and a serious one. Indeed, it appears to be more common and more deadly than cancer."*

"About a fourth of all deaths of individuals past fifty years of age is referable to hypertension."*

". . . hypertension usually is a serious disease which terminates the lives of those it afflicts within a relatively short period."*

*Allen, E. V., Medical aspects of arterial hypertension, Bull. N. Y. Acad. Med., 17: March, 1941.

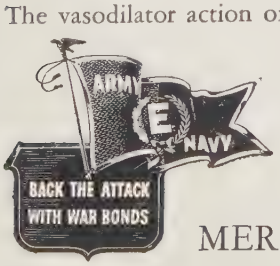


PROLONGED REDUCTION OF HIGH BLOOD PRESSURE WITH ERYTHROL TETRANITRATE MERCK

TREATMENT of arterial hypertension today is necessarily directed toward relief and not cure. The use of Erythrol Tetranitrate is suggested as an additional measure when the usual regimen of rest and dietary control has proved inadequate.

Erythrol Tetranitrate offers the advantage of producing such a prolonged reduction in blood pressure that administration three times daily may be adequate to maintain the desired level. It may be prescribed over an extended period with sustained effect.

The vasodilator action of Erythrol Tetranitrate usually begins about fifteen minutes after administration and persists for a period of three to four hours. The average dose is ½ to 1 grain (0.03 to 0.06 Gm.) every 4 to 6 hours, in tablets as marketed.



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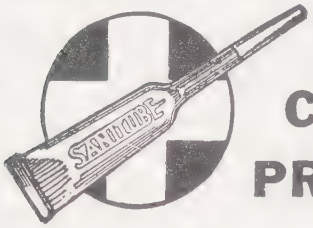

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Against Gonorrhea and Syphilis

Sanitubes, the original Navy prophylactic tubes, are not sold in Army post exchanges.

Every drug store a prophylactic station!

A single tube only—half the ointment inside the urethra to prevent gonorrhea, half applied outside to protect against syphilis.

No "two tubes" to get confused, no color to stain fingers and clothing, no odor, no irritation.

As to comparative efficiency, let us send you laboratory findings.

THE SANITUBE CO., NEWPORT, R. I.

Hexital

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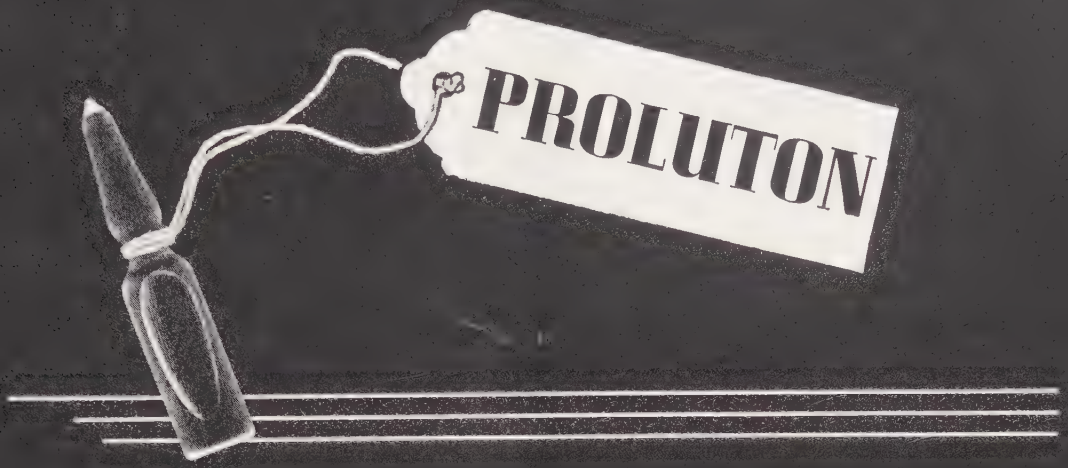

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The Royal Touch

The introduction into England of the Royal Touch for the King's Evil has been attributed to Edward the Confessor (1042). The King's Evil *morbus regius* or scrofula, was a mixture of conditions. Most typical were tuberculous glands of the neck, often deficiency phenomena such as severe rickets and phlyctenular ulcer, while goiter and Spina ventosa were included. The touchpiece after 1470 was the angel; it was worth 6s. 8d. to 10s. Henry II revived the procedure, and so right on to Queen Anne the ceremony persisted, though neither Cromwell nor William III "touched", except on one special occasion when the latter told the recipient: "God give thee better health and more sense."

Dr. Johnson had a touchpiece given him by Queen Anne when he was a boy suffering from enlarged glands in the neck. The scars, however, remained with him for life.

Charles II "laid hands" on over ninety thousand people in nineteen years. Sir Thomas Browne sent a patient to Breda to be touched by him during his exile. Wiseman, his surgeon, related many cures. Finally, the Hanoverians refused to use the Royal privilege. It is one of the few forms of healing safeguarded by the strict law. The French kings started the proceeding in the tenth century. They said to the patient: "The king touches thee, may God heal thee." Henri VI, as he swung his blade at the Battle of Ivry, used these familiar words.—*Med. Jour. Australia, July* 10, 1943.

New Rules for Hospital Visitors

Hospital visitors are now rationed in seventy-six voluntary New York hospitals, according to Dr. Paul Keller, medical director of the Associated Hospital Service of New York, who announced recently the posting in member hospitals of Blue Cross placards bearing wartime rules for visitors. "This move is for the best interest of the patient," said Dr. Keller. "Guiding visitors to rooms, and seeing that they obey regulations and leave when they should, takes time of hospital workers. Visitors also interrupt nursing care."

The visiting regulations posters request that visitors voluntarily restrict the frequency of their visits and send fewer gifts to patients, especially if the gifts require care. Send books and magazines, they suggest, and save the flowers and goldfish until the patient gets home. Visitors are further asked to make their stay as brief as possible, not to discuss war, illness, or anything that will excite the patient, to speak quietly, walk softly, and make no unnecessary telephone calls in order that telephone lines may be kept clear for emergencies.

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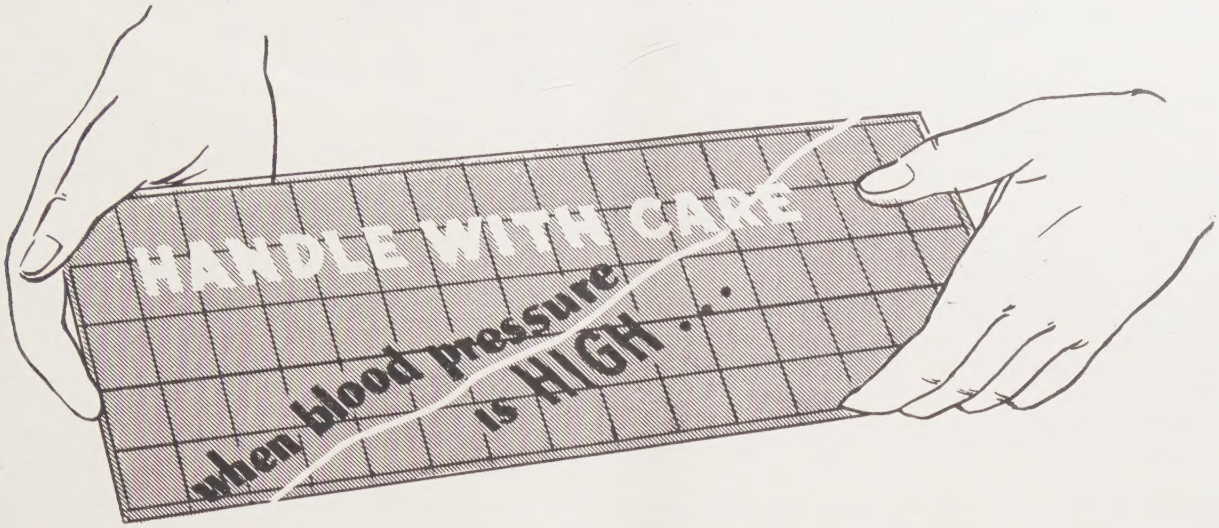

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Get Married and Live Longer

Marriage makes for longer life. This is again borne out by statistics published by *Health News*, Sept. 20, 1943, in an article entitled "Marriage and Survival", by J. V. De Porte, covering death rates per 1,000 population in New York State, 1939-1941. Except in the age group from fifteen to twenty-five, when married women succumbed most frequently to the hazards of childbearing, married men and women had lower death rates than bachelors and spinsters at all of the compared ages.

However, to live longer, you must stay married! The younger the widowed partner, the greater the mortality, especially in men between the ages of twenty and thirty. Divorce, on the other hand, produces its worst ravages for women between twenty and twenty-nine, while after thirty a divorced man takes the lead to the grave over divorcées.

Married men have it all over bachelors in resistance to death by accidents, alcoholism, homicide, pneumonia, tuberculosis and syphilis. However, between thirty and forty-five death from diseases of the arteries increased for married men, appendicitis was more fatal after thirty-five, diabetes after fifty-five, and cancer after sixty-five. Married women died more frequently than spinsters from tuberculosis between fifteen and twenty, from pneumonia between fifteen and thirty, from cancer between twenty and thirty-five (all possibly associated with childbearing hazards as well) and from diabetes at practically all ages, but especially between fifty-five and sixty-five, while just being married did not insure them from death by suicide under forty-five or from homicide at any time. All such factors aside, however, the married woman still has an edge on her unmarried sister.

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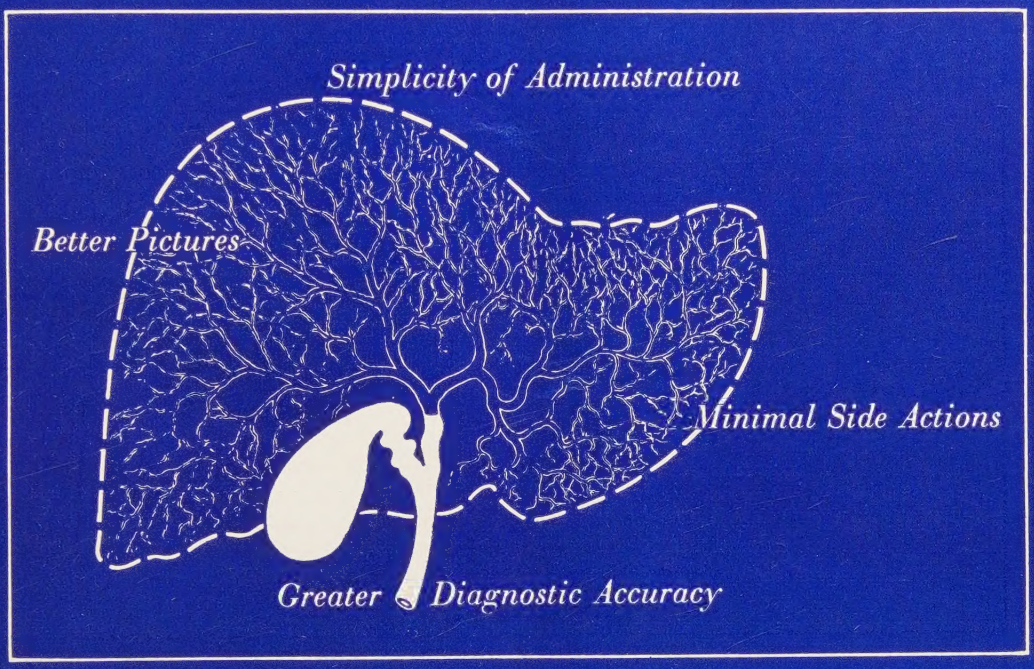

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